WORKING PLAN REPORT

YH004370

OF

ANKOLA HIGH FOREST

BLOCKS XXIV & XXV

BY

R. S. PEARSON, I. F. S., F. L. S.,
Deputy Conservator of Forests,
WORKING PLANS, S. C.

1908.

BOMBAY
PRINTED AT THE GOVERNMENT CENTRAL PRESS
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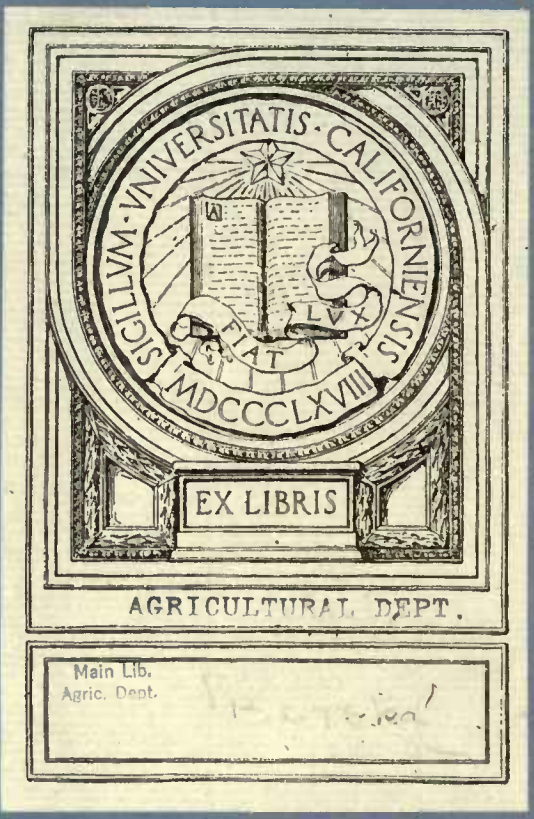

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CONTENTS.

Particulars.	Paragraphs.	Page.
Introduction	...	1
PART I.		
SUMMARY OF THE FACTS ON WHICH THE PROPOSALS ARE BASED.		
A.—"Description of the tract dealt with."		
Name and situation	1—2	1
Configuration of the ground	3—4	2
Rock	5—6	2
Soil	7—8	2
Climate	9—11	2
Agricultural wants of the population	12	3
B.—"Composition and condition of the crop."		
Distribution of area	13	3
State of the boundaries	14	3
Legal position (*a*) Rights	15	3
Do. (*b*) Concession	16	3
Composition and condition of the crop	17	4
Regeneration	18	4
Injuries to which the crop is liable	19	5
C.—"System of Management."		
Past and present system of management	20	5
Special works of improvement undertaken	21	5
Past revenue and expenditure	22	5
D.—"Utilization of the Produce."		
Marketable produce ; requirements to be met...	23	6
Lines of export	24	6
Mode and cost of extraction	25—27	7
Centres of consumption	28	7
Net value of each class of produce	29	7
E.—"Miscellaneous facts."		
Forest staff	30	7
Labour supply	31	7
PART II.		
FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED.		
A.—"Basis of proposals."		
Working Circles how composed ; reasons for their formation ...	32	8
Sub-division of the area in blocks and compartments	33 & 34	8
Analysis of the crop ; method of valuation employed	35	8
B.—"Method of treatment."		
Object sought to be attained	36	8
Method of treatment adopted	37	8
The exploitable size	38—40	9

394752

Particulars.	Paragraphs.	Page.
C.—" The fellings."		
The general working scheme	41 & 42	9
The yield or possibility	43—51	10
Period for which fellings are prescribed	52 & 53	12
Mode of executing the fellings	54—58	14
Forecast of the condition of the crop at the end of the cutting period...	59 – 65	15
D.—" Supplementary provisions."		
The improvement fellings	66 – 70	16
Statement of improvement fellings	71	18
Fire protection	72	20
Regulation of grazing	73	20
Keeping the compartment boundaries clear	74	20
Roads and buildings	75 & 76	20
E.—" Miscellaneous."		
Changes proposed in the forest staff	77—79	21
Forecast of financial results	80	22
Control Books to be kept	81	22
F.—" Appendices."		

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THE WORKING PLAN FOR THE ANKOLA HIGH FORESTS OF THE WESTERN DIVISION OF NORTH KA'NARA DISTRICT.

BLOCKS XXIV AND XXV.

INTRODUCTION.

Collection of data.

The data on which the following plan is based were collected during the months of March and part of April 1907, when work had to be stopped owing to the staff being much reduced by sickness; it was started again on the 1st December 1907 and completed by the end of May 1908.

Establishment employed.

Mr. P. E. Aitchison was in charge of the work during March and April 1907, while the writer of this Report carried on the work from December 1907 to May 1908. The establishment employed consisted of 5 Surveyors, of whom three were in charge of the enumeration parties; one was employed on internal demarcation; and one on the survey and demarcation of the outer boundaries. Two and at times three complete enumerating parties were employed, each consisting of one recorder, five enumerators and eighteen coolies :—

	Rs.	a.	p.
Cost of Field Work	13,552	12	11
Pay and Travelling Allowance of Superior Officer ...	5,380	5	5
Pay and Travelling Allowance of Office Establishment ...	294	1	2
Pay of Surveyors, Head Clerk and Travelling Allowance.	1,749	14	6
Pay of Coolies for Enumeration, Survey and line cutting.	5,731	11	9
Miscellaneous	396	12	1
Grand Total ... Rs.	13,552	12	11

In the above the pay of the Superior Officer and office establishment is given for the time spent on the field work only. The cost per square mile works out to Rs. 188 annas 3 pies 0.

PART I.

SUMMARY OF THE FACTS ON WHICH THE PROPOSALS ARE BASED.

A.—Description of the tract dealt with.

Name and situation.

1. This plan has been prepared for what is known as the "Ankola High Forests." These are situated in the east of the Ankola Táluka, in the upper reaches of the valley formed by the Gangavali River, the centre of the area being some 30 miles from the sea coast.

Boundaries of the Working Circle.

2. *North and South.*—The north and south boundaries are not formed for the most part by any natural lines, but have been fixed and demarcated so as to divide, as far as possible, the deciduous from the ever-green forests. This line as a rule does not extend above the 1,000 feet contour line.

East.—The area dealt with is a continuation of the tract already organised under the Arbail Slopes Working Plan, so that the west boundaries of Arbail Plan and the east boundaries of the area now organised are identical.

West.—The west boundary north of the Gangavali River runs from the P. W. D. bridge crossing the Handimadi Nalla, along the western slopes of the Marugudda Valley, dividing the deciduous from the ever-green forest, while the

boundary to the south of the river, along the Pattanpur Local Fund Road, has been fixed with a view to exclude the less valuable forests towards the west.

Configuration of the ground.

3. The area to be brought under systematic working comprises a strip of country lying in the valley formed by the Gangavali River, some 18 miles in length and varying in breadth from 3 to 10 miles.

4. The general configuration of the ground is hilly. On each side of the river, at a distance varying from 3 to 6 miles, run parallel lines of hills, rising to 1,800 feet and with individual peaks considerably higher. These hills are in reality a continuation of the Sahyádri Hills, out of which the Gangavali River has cut the valley. These ranges are further cut into by four tributary streams to the north and two on the south of the main stream, while from the crest of the hills and running down into the main valley are innumerable spurs, in some cases with very steep gradients. Between the slopes on each side of the Gangavali River the ground is undulating, with here and there hills rising to 500 and 600 feet above the surrounding country, generally detached or semi-detached portions of the main ranges.

Rock.

5. The geological formation of the Ankola Valley varies greatly in character throughout the area. Round the Gangavali River and in most of the low-lying localities laterite covers the greater portion of the area. The small hills, semi-detached spurs and slopes are either igneous or metamorphic rocks. Laterite is again found capping the tops of the highest hills, though such places are generally outside the organised area. It is remarkable to find the laterite both on the tops of the hills and also in the valleys, with crystalline rocks of older origin lying between them on the slopes.

6. On the hill sides a great variety of crystalline rocks occur, consisting of gneiss, schists, inferior granite, and in places, basalts much intersected with veins of milky quartz. Though no visible signs of foliation are present, the rocks appear to have been subjected to intensities of heat, pressure and sheering stress, resulting in various degrees of metamorphism. On the slopes above Konal a rock resembling shale, and in places approaching true slate, is to be found, while on the western slopes above the Kodalgudda village the rock is largely formed of milky quartz. The slopes are nearly everywhere covered with fragments of rock which have been broken off from the scarps above and rolled down the steep hill-sides.

Soil.

7. Generally speaking, in the valleys, the disintegration of the igneous and metamorphic rocks from the slopes mixed with the wearing of the laterite rocks in the valleys has formed a deep, rich, fertile soil, very suitable to the Forest vegetation found in these localities. A tract of low-lying land containing somewhat poor soil exists on either side of the Gangavali River, reaching from mile 39 on the Yellápur Road, to the Dongri Village. Here it stops on the north bank, but extends on the south side, at a little distance from the river and runs past Hegarni Village down the Chándgár Valley to the village of Mabge.

8. The hill-sides are much exposed to denudation by the heavy rains, especially the upper slopes where in places the rock appears on the surface, as for instance on the south slopes of the Bidralli ridge, the western slopes of the Ujralli valley, and again on the south side of the Hillurbail range. The soil formed by the disintegration of crystalline and metamorphic rocks on these slopes, though generally speaking not deep, is by no means of poor quality, as may be seen from the growth of Teak, Kindal, Nana and other species in places where the rock comes very near the surface.

Climate.

9. There is no meteorological station within the area, the nearest being at Ankola, some 12 miles from the western boundary of these forests. Here the average rainfall for the last 5 years is 124·33 inches, which is probably considerably lower than the average at Ramanguli, a village lying on the eastern boundary of the area.

10. The maximum temperature can rarely be much over 105° in April and May but, owing to the shut-in nature of the country and the heavy rainfall,

especially up the narrow side valleys, the climate is very humid and close for a great part of the year.

11. These forests have a very bad reputation as being feverish and unhealthy, especially at the foot of the ghâts and, judging from the way the establishment suffered, this is no doubt true. In consequence of the bad climate labour is always a difficulty and work in the forest is often delayed.

Agricultural wants of the population.

12. The population living within these forests is not large being limited to cultivators who have settled near the banks of the larger rivers and often in very out of the way places up small valleys where they cultivate small rice and sugarcane fields, while directly round their huts are situated their Supári (betel-nut) and cocoanut gardens. Their requirements consist of small timber for house building, for their sugar mills and canoes, firewood, fencing material and twigs and green leaves for manuring their "Supári" gardens. They further require grazing for a very limited head of cattle. There is no difficulty in supplying the population with timber and fuel, while, under the revised settlement which has been submitted for the sanction of Government, four acres of forest to an acre of Supári garden has been proposed to meet the supply of green leaf manure for these gardens. The grazing question will be dealt with hereafter. There is, besides the local demand, a considerable amount of timber and building material required by sea coast villages, arrangements for which will have to be made.

B.—Composition and condition of the crop.

Distribution of area.

13. The area forms an elongated block of forests containing 49,643·7 acres, divided lengthways down the centre by the Gangavali River. Of this area 41,875·8 acres are Reserved Forest (shown *green* on the map), 3,131·2 acres Minor Forest (shown *purple* on the map), 1,106·9 acres Soppin Betta (where green leaf manure may be cut, shown *brown* on the map), and 3,529·8 acres under cultivation (*not coloured*).

The 45,007·0 acres of Reserved and Minor Forests comprise 3,105 acres of teak-bearing deciduous forest (shown by the letter "T" in red on the map), 37,697 acres of non-teak deciduous forest (shown dark and light green according to 1st and 2nd quality) and 4,205 acres of evergreen forest (shown by deep green lines on the map).

State of the boundaries.

14. The main object in view while fixing the outer boundaries of the blocks was to separate the deciduous from the evergreen forests. So as to keep the outer boundary as regular as possible and also so as not to exclude semi-evergreen areas containing some fine deciduous species scattered here and there in them, it was found occasionally necessary to include evergreen areas of considerable extent within the plan. The external boundary fixed has been demarcated by deeply blazing all trees within 10 feet of it on each side. The internal lines demarcating the compartments have generally been taken along roads or nalas, the trees on the sides and banks of which have been heavily blazed; where natural features could not be taken as boundaries, they have been demarcated by a cut line 25 feet broad.

Legal position (*a*) Rights.

15. Under the original forest Settlement made in 1880, part of the area was constituted Reserved Forest and part Protected Forest. In 1906 the work of re-settlement was undertaken resulting in the whole area being constituted Reserved Forest with the exception of 1,106·9 acres left as Protected Forest for the purpose of providing green-leaf manure for the spice gardens. 3,131·2 acres of Reserved Forest have been classed as Minor Forest in which the villagers are allowed to exercise the privileges sanctioned by Government from time to time, the remaining area being classed as "Forest Proper." The area now consists of 41,875·8 acres of forest proper, 3,131·2 acres of minor forest and 1,106·9 acres of Soppin-betta or protected forest.

(*b*) Concessions.

16. The exercise of privileges under the Kánara Forest Rules is permitted in the Minor Forests, from which the cultivators may cut their brushwood, fencing material, firewood and

timber for agricultural purposes, while they get their green leaf manure from the soppin-betta areas assigned to them. According to the rules they graze their cattle at 2 annas per head.

Composition and condition of the crop.

17. A detailed description of the crop is given under Appendix III, so that only a brief general description of the growing stock is necessary owing to the varying conditions of the locality, such as altitude, aspect, soil and underlying rock, together with the former treatment to which the crop has been subjected. The forest has assumed five somewhat distinct types:—

(*a*) In the east and, therefore, in the forests farthest removed from the sea, on the upper slopes of the hills and spurs coming down from the Arbail ghâts, true deciduous forests containing Teak are found. There the height growth is about 70 feet and the forest is fairly well stocked, containing, besides Teak, good Nana, Kindal, scattered Sissum, Heddi, Honni, Jamba, a few Matti, inferior species and Bamboos.

(*b*) The second type of forests is found on the lower-lying ground, along the main stream and up the larger valleys. Here the ground is covered with moist deciduous forests, with generally speaking a height of 80 to 100 feet and a full stocking of large Matti, Nana, Kindal, Jamba, Dhamni, Womb, a few Sissum, Honni, Heddi, inferior species, many Bamboos and a heavy growth of Karvi, but practically no Teak. From the more accessible areas in this class of forests the fellings of Matti, Jamba, Nana and in places Heddi, have been very heavy in the past. Thus in the Kolga, Kendga and Marugudda valleys, north of the Gangavali River, and again in and around Shavkar village and in the Halvalli-Kuntgani valley south of the river, most of the large trees of these species have been exploited, leaving good young growth and many large misshapen trees.

(*c*) In the small narrow valleys and on the upper slopes above the 1,000 feet contour line, especially on north and north-east aspects, evergreen forest appears, forming a very marked contrast to the deciduous forests below. In places the deciduous and evergreen forests gradually merge from one type of forest into the other, and only where former "Kumri" cultivation has upset the balance of nature is the line distinctly marked.

(*d*) The fourth type of forest is very local, being chiefly confined to the Dongri and Hegarni plain, where a species of exaggerated scrub jungle has come into existence containing stunted Matti, Kindal, Hirda, Khair and thorny bushes. This type of forest is the result of former cultivation which impoverished the soil by laying it bare and when reduced to such a state that even a meagre crop could no more be raised, it was allowed to lie fallow and has since produced this poor class of forest.

(*e*) Lastly, a very distinct feature of the growing stock, but one which does not form an altogether different type of forest is the growth which has come into existence on the former "Kumri" areas. At the higher elevations the forest so produced is a crop of nearly pure Jamba, now in the pole stage, which is sparsely intermixed with well grown Nana and Kindal but few other species. Lower down the slopes the percentage of Jamba in the crop becomes less, while that of the better deciduous species increases, till, in the valley, the result of this clearing of the forest growth has resulted in very promising Matti pole woods mixed with other valuable species.

18. *Regeneration.*—Regeneration from coppice has probably played but a very small part in the origin of these forests, by far the greater portion of the growing stock having originated from seed. It may at once be stated that the natural regeneration is good and in some places excellent. In a forest containing such a variety of species and in which the production of seed of most of the species is assured, the distribution of the species must depend largely on their powers to withstand shade in the struggle for existence and it is on this point that the future of these forests depends.

The Teak producing area is small as compared with the rest of the forest, so it is the other more valuable species that we must chiefly take into consideration. Of these, in order, Matti, Nana, Kindal and Jamba are those for which there is at present the greatest demand. Matti is without doubt the greatest

light demander of the four, seedlings of this species being found only in fairly open places in the forest, along cut lines and on the edge of old cultivations, while it is often found suppressed under shade. Kindal comes next on the list as a light demander and its natural regeneration is everywhere good. Nana stands lateral shade, especially in youth. Jamba is a heavy shade bearer and so profuse is the seedling crop that it requires no encouragement.

It will be readily understood that as three of the most valuable species are light demanding the future growth of the natural regeneration of the better species will depend on the treatment adopted.

Injuries to which the crop is liable.

19. Owing to the configuration of the ground and to the limited population in these forests, the damage done by man and cattle is confined to strips of forest of limited extent round the cultivated areas. In certain of the flat areas round the villages of Shavkar, Konal, Hegarni and Kuntgani to the south of the river, and to a less extent round Sunksal and up the Kolga and Marugadda valleys north of the river, overgrazing has retarded natural regeneration, otherwise the damage caused by cattle is not great. The forests round Dongri and Hegarni have been badly treated in the past but now appear to be gradually recovering, while "Kumri" cultivation which did much damage in the past has long been stopped. Fire plays a relatively small part in these moist forests, and it is very questionable if the encroachment of the evergreen on the more valuable deciduous forests is not in a large measure due to fire protection in the past. By far the greatest damage to which the principal species, namely, Matti, is exposed is the "water blister." This abnormal growth is found on quite 30 per cent. of the growing stock and ruins some 10 to 12 feet in the centre of many otherwise fine logs.

Creepers and climbers are plentiful, especially in the moist deciduous forests, and do much local harm. Lastly, the excessive growth of Bamboo is no doubt the cause of the lack of natural regeneration in certain localities, such as in the Kotha forest and also south of Ramanguli on the south side of the river, otherwise the Bamboo growth, where moderate, is beneficial to the growing stock.

C.—System of Management.

Past and present systems of management.

20. These forests have never been worked under any system, fellings having been carried on where the best trees could be exploited with a minimum amount of labour. The result is that most of the low-lying areas near the road or river have been heavily exploited for sound Matti, Jamba, Nana and Heddi, leaving in such areas a number of large somewhat faulty trees, while on the slopes and in the more inaccessible places large sound trees of these species are still found. As stated above certain areas have been over exploited, but it cannot be said that these fellings have ruined the forest, as the exploitable girth of Matti and Heddi was kept high and only mature trees taken out while the number of trees taken out annually as compared with the total yield of these forests was not excessive. Kindal has only found a market in recent years, and the number of mature trees of this species now standing in the forest is very large.

Special works of improvement undertaken.

21. No planting or sowing has been undertaken in the past. The protection from cattle has been somewhat lax, while spasmodic creeper-cutting has been carried on by the establishment from year to year. Fire-protection has been rigidly enforced, but whether this was conducive to improving the natural regeneration is open to doubt.

Past revenue and expenditure.

22. From the following statement of revenue and expenditure for the last ten years, compiled from the records of the Range Office, Ankola and Hattikeri Depôt daftar, it will be seen that Matti, Nana and Jamba are the chief species which have been sold and that it is only recently that Kindal has been exploited to any extent. In preparing this statement only the trees extracted from the area under organization are given and not from other portions of the

Range, while it has only been found possible to give the grazing returns for the whole Range. The firewood, which is chiefly procured from other forests of the Range, has been omitted. A detailed statement under this head is given in Appendix IX :—

Revenue and Expenditure for the past ten years.

Year.	Species.	Number of trees felled.	Logs prepared.	Cubic feet.	Other dead wood Cubic feet.	Under Permit.	Amount realized.	Expenditure.	Net amount realized.	Grazing.	Minor Forest produce.	Total revenue 10, 11 and 12.
1	2	3	4	5	6	7	8	9	10	11	12	13
							Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1898-99 to 1907-08.	Teak ...	...	48	678·50	77,569·35	34,850·98	2,07,391 5 0	29,584 14 6	1,77,806 6 6	24,705 1 6	14,049 14 0	2,16,561 6 0
	Black wood ...	...	14	146·0								
	,, ...	1	1	4·68								
	Matti, green ...	3,867	8,275	227,336·93								
	,, dead ...	460	817	16,388·56								
	Nana, green ...	2,346	3,868	110,430·58								
	,, dead	209	352	7,744·07								
	Kindal, green ...	196	298	12,004·38								
	Jamba, green ...	47	64	1,277·37								
	,, Sleepers 12,127	...	...	...								
	Heddi ...	75	113	1,878·00								
	Jungle wood ...	...	300	7,652·91								
	Total ...	7,201	14,150	3,85,591·98	77,569·35	34,850·98	2,07,391 5 0	29,584 14 6	1,77,806 6 6	24,705 1 6	14,049 14 0	2,16,561 6 0
	10 years' Average...	720	1,415	38,559·9	7,756	3,485	20,739 2 0	2,958 7 10	17,780 10 0	2,470 8 2	1,404 14 0	21,656 2 0

D.—Utilization of the Produce.

Marketable produce; requirements to be met.

23. The amount of large Teak and Sissum available is limited and every log forthcoming will procure a ready sale. Matti is the most valuable species found in large quantities, the demand for it has been annually increasing and all the logs these forests can supply will find a market and give a useful profit on the expenditure incurred on their extraction. The timber is chiefly exported to Goa, Bombay, Bhávnagar, Mangalore and Cochin.

Nana is a species that has only of late years afforded sufficient profit on the cost of extraction to guarntee its exploitation in any quantity especially from difficult localities. It will, however, probably be possible to work out the full yield of Nana from these forests at once. Fifty tons of this species are supplied yearly to the Southern Marátha Railway. The number of mature Kindal is large, and at present the yield will exceed the demand, but this state of things will probably improve as the price of Teak and other species increases, and it may be reasonably expected that the demand for Kindal will equal the supply in years to come. Fifty tons of this wood are annually sent to the Southern Marátha Railway from these forests. Jamba was in fair demand for Railway sleepers in the near past, but has of late been rejected for that purpose. The demand for Jamba for other purposes is small and is chiefly confined to the local requirements, but may again improve. At the same time the supply of large timber of this species from these forests is by no means great. For other species the demand is not great; Heddi is required for preparing dug-outs, and to a small extent as timber by merchants in Bhávnagar and Goa. Honni is not abundant but will always find a sale. Sagdi is in small demand for sugar mills, while Bharnigi and Dhamni are used locally for building.

Lines of export.

24. Up to the present the timber exploited from the north side of the river has been taken to the Hattikeri Depôt along the high road by bullock carts. When exploited from the Konal, Shavkar and Halvalli forests, south of the river, it has been floated down from 3 miles above the Ramanguli ferry to a place 2 miles below that

point, where it is put on carts and taken by the same road to Hattikeri. From west of the Halvalli valley and south of the river, the exploited material has been dragged and carted to Gundbala and floated down to the Gangavali bunder, at the mouth of the river, and brought round to Kodibág Depôt.

Mode and cost of extraction.

25. In future it will probably be best to continue bringing the timber from Block XXIV, north of the river, and also all material from Block XXV, compartment numbers 41 to 51, south of the river, down the main road by carts to Hattikeri Depôt. For the timber from Block XXV, compartments 52 to 70, south of the river, it will be more advantageous to bring it also to Hattikeri Depôt, instead of to Kodibág. To do this it will be necessary to extend the present Chandghar-Hossakumbi forest road, some 8 miles to Kankanhalli, which will make it a simple matter to cart wood *viâ* the Pattanpur or Yekeguli crossings, down the main road to Hattikeri Depôt.

The benefit for sale purposes of collecting all the material at one depôt instead of dividing it between two is obvious.

26. Another possible method instead of constructing a road from Hossakumbi to Dongri might be to clear the bed of the Gangavali River of rocks between Kotha and Gundbal and so make floating possible. It is, however, a long stretch of some 16 miles and as the state of the river bed is bad, the initial cost of such an undertaking would hardly justify the result obtained.

27. The cost of felling and carting logs from Ramanguli and the surrounding forests, namely, from the forests situated furthest from the depôt, some 29 miles distant, comes to Rs. 20 per ton or annas 11 per ton per mile.

Centres of consumption.

28. Timber sold at Hattikeri Depôt is taken to Goa, Bombay, Bhávnagar, Mangalore and Cochin, while timber sold on permit is consumed locally.

29. The following statement indicates the average gross and net prices realized for each class of produce during the last ten years:—

Year.	Species.	Cost of working departmentally per ton.	Price realized per 100 C. ft.	Net profit per 100 C. ft.	Remarks.
1	2	3	4	5	6
		Rs. a. p.	Rs. a. p.	Rs. a. p.	
1898 to 1906 ...	Teak (dead) ...	.....	48 0 0	48 0 0	Sold standing.
	Matti (green) ...	.....	43 12 0	43 12 0	
	„ (dead) ...	.....	24 11 0	24 11 0	
	Nana (green) ...	.....	27 0 0	27 0 0	
	„ (dead) ...	.....	20 4 0	20 4 0	
	Jamba ...	Not shown separately.			
1906-07 ...	Teak ...	.....	.....	.....	Departmental Agency.
„ ...	Matti (green) ...	25 11 6	*56 11 8	31 0 2	
1907-08 ...	Nana (green) ...	22 0 0	56 0 0	34 0 0	Sold to S. M. Railway.
„ ...	Kindal ...	22 12 0	56 0 0	33 4 0	

* Average price of sale.

E.—Miscellaneous facts.

Forest staff.

30. The staff at present is chiefly employed on departmental work extracting the logs marked by selection, executing permits given free or on payment, and on general protection of the forests. The area is divided into three Rounds in charge of 3 Round Officials and 13 Beat Guards. This staff has been found sufficient for the proper protection of the forests and to carry on the work in the past.

Labour supply.

31. It has generally been found possible to procure contractors to carry on the fellings and carting, the present system being to give contracts for exploiting the logs to Hattikeri Depôt at a fixed rate per ton. The question of coolie labour is not difficult, as men come readily from Kárwár and Ankola to work, the chief trouble being to keep them together owing to sickness.

PART II.

Future Management discussed and prescribed.

A.—Basis of Proposals.

Working Circles how composed; reasons for their formation.

32. The whole area contains a crop suitable for working under one system, the material forthcoming being extracted to one depôt. The forests are administered by one Ranger and form one of the units of the Western Division, Kánara, so that there is no reason for splitting the area into more than one Working Circle.

Sub-division of the area in blocks and compartments.

33. Owing to the irregularity in the stocking, it will be necessary to divide the area into two blocks to facilitate the regulation of the annual yield. The forests are approximately divided into two equal parts by the Gangavali River, so that the portion north of the river will constitute Block XXIV, containing 24,096·8 acres and that south of the river will constitute Block XXV containing 20,910·2 acres. For facility in supervision it would have been better only to have one block and one cutting series, but this would make it difficult to regulate the yield, and would restrict permit-holders, who will procure their wood from the improvement felling areas, to cutting in one place and thus cause them considerable inconvenience.

34. Each block has been sub-divided into compartments; Block XXIV containing 40 and Block XXV 30 compartments. Each compartment is approximately one square mile in extent though the areas vary somewhat in size, owing to the boundaries having been taken as much as possible along rivers, nallas, roads and other natural lines. Generally speaking, each compartment consists of an area contained between two definite streams running from the crest of the hills down to the main stream. As the forest is to be worked by the method of selection fellings, and the exploitable trees are growing scattered over the area, a more minute sub-division has not been deemed necessary.

Analysis of the crop; method of valuation employed.

35. The estimation of the growing stock was made by counting and measuring all trees on 10·25 per cent. of the area of each compartment. The enumeration work consisted in running enumeration lines 198 feet broad in all directions through each compartment, thus forming areas containing 24 acres to the lineal mile. Fifteen species were separately recorded, according to inch classes, of which Matti was further divided into classes of sound and unsound trees, while the remaining species were recorded in lump as "accessory species." The results of these valuation surveys, which were carried out under the constant supervision of the controlling officer, are given in Appendix IV-a. At the same time as the valuation surveys were in progress, stock maps of each compartment were prepared, showing the Teak producing area, those containing deciduous forest without Teak, and evergreen forests.

B.—Method of Treatment.

Object sought to be attained.

36. The object of the plan is two-fold. First, to produce for export large Matti, Nana, Kindal and Jamba timber and as many logs as are available of Teak, Sissum, Honni and other species. Secondly, to meet the demand for small building timber, firewood, fencing material and grazing made by the local inhabitants and sea-coast villagers of the Ankola Táluka.

Method of treatment adopted.

37. The crop as it now stands contains a large variety of species of all ages and is essentially of the character of high forest, containing many mature trees. The struggle for existence in these moist deciduous forests is keen and the natural regeneration fully secured, its future composition being

governed chiefly by the amount of light admitted to the undergrowth. Were the crop untouched by man the system would develop into that of "Jardinage Naturel" or true selection system and, as this system in practice produces the class of timber required it is without doubt the system that should be adopted. As mentioned above the regeneration and therefore the future constitution of the growing stock is principally governed by the amount of light admitted to established seedlings and, as many of the valuable species require varying amounts of light and shade, it will be further necessary to introduce improvement fellings based on the requirments of the various species.

The exploitable size.

38. To frame a Working-plan in which calculations are to be made for all 15 species would in this instance involve calculations productive of no value in practice. Teak and Blackwood are found only in small quantities, so may be neglected for the purpose of arriving at the possibility. It is proposed to base the calculations of the rotation and yield on the four most largely represented and valuable species, *i. e.*, Matti, Nana, Kindal and Jamba, and to place a check to overcutting of the remaining species by fixing a minimum girth limit, to which will be added a check by area.

39. As set out in paragraphs 7 and 17 (*d*) the soil varies considerably. For the most part it is fair to good, though in certain areas it is poor. The area has therefore been divided into two quality classes for which different exploitable sizes have been adopted. From careful examination of many trees cut from both 1st and 2nd quality areas and, taking into consideration the rate of growth shown on prepared sections, also the fact that logs of large dimensions realize far better prices than those of moderate size, the following dimensions have been fixed as the minimum exploitable girths of the various species :—

Class.	Species.	On first quality areas.	On second quality areas.
1st	Heddi	8 feet.	7 feet.
2nd	Matti	7 feet.	6 feet.
	Nana		
	Kindal		
3rd	Jamba	6 feet.	
	Teak		
	Sissum		
	Honni		
	Jambul		
	Bharnigi		
	Womb		
	Accessory species		
4th	Dhamni	5′-6′	5′-6′.
	Apta		
	Kharsing		

40. Matti and Nana can reach the girth of 7 feet, without becoming in any way unsound, while Kindal owing to the fluted nature of the stem in mature trees cannot be put in a lower class, otherwise the squared log would be below its best marketable price. The rate of growth of Jamba after it has reached 6 feet in girth is so slow that it would not be justifiable to put it into the 2nd class. As regards Teak, in the adjoining areas of Arbail it is worked under a 7 feet girth, but here, owing to its proximity to the sea together with the low elevation at which it is found, it is thought better to place it in the 3rd class.

C.—The fellings.

The general working scheme.

41. It is proposed to exploit Matti, Nana, Kindal and Jamba as the principal species and Teak, Sissum, Heddi, Honni, Jambul, Bharnigi, Dhamni, Apta, Womb and Khar-

sing as secondary species, according to the number of mature stems available and the demand. Of the less valuable species in the second group it may not be found possible to exploit them in the major fellings, though some may be disposed of at a profit on permit in the improvement fellings.

42. The period of felling is fixed at 40 years, during which time two major felling series will be in progress, one on either side of the river, supplemented by four series of improvement fellings, two in each block, so that during the felling period of 40 years each series of improvement fellings will go over half the area of each block twice.

The yield or possibility.

43. To arrive at the age at which the four principal species attain their respective exploitable girths, a large number of sections was examined. The tabulated results are given in Appendix V. Great difficulty was experienced in counting the annual rings of all these species, especially those in advanced age, so that it will be necessary to leave throughout the calculations a margin of safety.

44. One inch has been allowed on diameter for the bark of all species. This is not actually correct for each individual species, as Matti would be more than that. For Kindal and Nana it is about right, while the bark of Jamba, especially of old trees, is less than an inch in diameter. However, if each species were treated separately throughout, the calculations would be far too complicated for practical application. A tree of 24 inches diameter with bark or 23 inches without bark will constitute a 6 feet girth tree with bark, and 27 inches with bark or 26 inches without bark will constitute a 7 feet girth tree, the measurements being taken $4\frac{1}{2}$ feet from the ground.

45. From Appendix V it will be seen that the following are the rates of growth of the four species :—

From inches.	To inches.	Matti years.	Nana years.	Kindal years.	Jamba years.
0″	2″	9	7	9	11
2″	5″	17	14	16	18
5″	8″	17	16	17	19
8″	11″	20	18	17	18
11″	14″	26	20	18	19
14″	17″	22	21	18	22
17″	20″	24	29	20	31
20″	23″	25	35	22	35
23″	26″	35	45	38	...
	Total ...	195	205	175	173

The time taken by the first three species to pass from 6 feet to 7 feet girth varies somewhat. It takes Jamba, which is to be felled at 6 feet girth, 35 years to pass from 5 feet to 6 feet in girth. The average time it takes for all four species to pass from their respective penultimate to their ultimate classes is 38·2 years, and for safety's sake this figure is raised to 40 years. The number of years it takes Matti, Nana and Kindal to reach 7 feet in girth is respectively 195 years, 205 years, 175 years, and for Jamba to reach 6 feet in girth 173 years.

46. From the above figures it has been thought advisable to fix the rotation at 200 years, which is approximately that of Matti and Nana. If put lower so as more nearly to suit Kindal and Jamba a certain number of the other two more important species would not reach maturity within the rotation. The effect on the possibility of Kindal and Jamba by raising the rotation will be to slightly reduce the yield on paper of these two species. The effect in practice will be very trifling and will constitute a margin of safety against overcutting. The 1st felling period has therefore been fixed at 40 years, and the rotation at 200 years, which gives 5 cutting periods during the rotation. The above calculations are based on rates of growth of trees in 1st quality areas ; for the 2nd quality area, which covers only a small portion of the whole and where

Matti, Nana and Kindal are to be felled with a 6 feet girth limit, no separate figures of rate of growth were taken, as the number of mature trees is very limited. Here the possibility will be based on the assumption that a 6 feet girth tree on 2nd quality soil takes the same period to reach maturity as does a 7 feet girth tree on 1st quality soil. This may not be quite correct but it is a safe assumption to make.

47. The normal annual yield of each species is the number of trees in the penultimate class plus, in certain cases, a portion of the antepenultimate class, minus the number lost during the transition period into the ultimate class, divided by 40. Without going into calculation on this point it is clear that there is a surplus growing stock, as, in every case except that of Jamba, the ultimate class shows a greater number of trees than the penultimate class, while in the case of Jamba it is about normal.

48. It is not possible to ascertain the number of trees lost in the mature class which disappear during the felling period; it will be about 5 per cent. In the same way the number lost from the penultimate class while passing into the mature class is put at 10 per cent., it being impossible to estimate it accurately owing to the numbers in the ultimate classes being abnormal. It will be seen in the case of Matti that the number of unsound trees is very great as compared with the sound trees. Now the amount is excessive in this species owing to the occurrence of the "Water blister" mentioned in paragraph 19 of the Report, but in spite of no water blister occurring in the other species moderate allowances will have to be made for faulty trees. Thus 30 per cent. of the ultimate classes and 20 per cent. of the penultimate classes of Nana, Kindal and Jamba will be considered as unsound and left out of account.

From observations made as to the extent to which the damage of the "water blister" on Matti reached up the stem, it was found that in many cases fair logs can be cut out of the non-affected parts of a blemished tree, so that in calculating the yield 40 per cent. of the unsound trees of this species will be included as capable of producing timber.

49. Owing to the difficulty experienced in fixing the rate of growth of the species in advanced age it is deemed advisable not to cut more than 50 per cent. of the number of trees which it is possible to fell in the penultimate classes, and which come over in front of the fellings into the ultimate class during the felling period, or in other words to cut $\frac{1}{4}$th of the trees as at present shown in the penultimate class.

The number of trees belonging to the four principal species included in the two highest classes is shown in the following table :—

Matti (Sound).		Matti (Unsound).		Nana.		Kindal.		Jamba.	
25"—27"	28" ?	25"—27"	28" ?	25"—27"	28" ?	25"—27"	28" ?	25"—27"	28" ?
8,448	9,909	8,172	13,318	7,262	11,053	20,951	32,130	15,678	11,658

50. The exploitable size of three out of the four species varies in the two quality classes, therefore separate calculations will have to be made in each case. As 77 per cent. of the area is 1st quality and 23 per cent. is second quality, we get the following yield of Matti for the full period :—

On 1st quality soil.

$$\frac{77}{100}\left\{(9{,}909-5\%)+\tfrac{1}{4}(8{,}448-10\%)+\frac{40}{100}(13{,}318-5\%)+\tfrac{1}{4}\times\frac{40}{100}(8{,}172-10\%)\right\}=13{,}175.$$

On 2nd quality soil.

$$\frac{23}{100}\left[\left\{(9{,}909-5\%)+(8{,}448-10\%)\right\}+\frac{40}{100}\left\{(8{,}172-5\%)+(13{,}318-10\%)\right\}\right]=5{,}731.$$

(In the calculation of 2nd quality yield the antepenultimate class is left out of account.)

The annual yield of Matti, therefore, comes to $\frac{13,175+5,731}{40}=\frac{18,906}{40}=$ 472 stems, which is taken in round figures as 470.

The yield for Nana will be as follows :—

On 1st quality soil.

$$\frac{77}{100}\left\{11,053-(30\%+5\%)+\tfrac{1}{4}\,(7,262-(20\%+10\%)\right\}=6,511.$$

On 2nd quality soil.

$$\frac{23}{100}\left\{11,053-(30\%+5\%)+7,262-(20\%+10\%)\right\}=2,822.$$

The annual yield of Nana, therefore, comes to $\frac{6,511+2,822}{40}=\frac{9,333}{40}=233$ stems, which is taken in round figures as 230.

The yield for Kindal will be as follows :—

On 1st quality soil.

$$\frac{77}{100}\left\{32,130-(30\%+5\%)+\tfrac{1}{4}\,(20,951-(20\%+10\%)\right\}=18,904.$$

On 2nd quality soil.

$$\frac{23}{100}\left\{32,130-(30\%+5\%)+20,951-(20\%+10\%)\right\}=8,177.$$

The annual yield of Kindal, therefore, comes to $\frac{18,904+8,177}{40}=\frac{27,081}{40}=$ 676 stems, which is taken in round figures as 670.

The yield of Jamba will be as follows :—

On 1st quality soil.

$$\frac{77}{100}\left\{11,658-(30\%+5\%)+\tfrac{1}{4}\,(15,678-(20\%+10\%)\right\}=7,948.$$

On 2nd quality soil.

$$\frac{23}{100}\left\{11,658-(30\%+5\%)+15,678-(20\%+10\%)\right\}=4,268.$$

The annual yield of Jamba, therefore, comes to $\frac{7,948+4,268}{40}=\frac{12,216}{40}=$ 304 stems, which is taken in round figures as 300.

The total annual yield of the four species works out to :—

Matti	...	... 470
Nana	...	... 230
Kindal	...	... 670
Jamba	...	... 300
Total	...	1,670 stems.

52. The period during which the area will be worked over is 40 years. Owing to the irregular distribution of the species, not only in relation to their own units but also in relation to one another, it is necessary to group the fellings into sub-periods and not to restrict the felling to a given number of trees and to a given area in one year. Four years is taken as the sub-felling period thus dividing the felling period of 40 years into 10 sub-periods.

Period for which fellings are prescribed.

53. The areas to be worked over during each sub-period and the number of trees available for felling in the same are given below :—

Note.—The figures for Matti, Nana, Kindal and Jamba include 50 per cent. of the trees coming over in front of the fellings, while those for Teak and Blackwood are the numbers in the first class only.

Serial No.	Sub-period.	Block.	Compartments included in sub-period.		Number of trees of different species available for felling during the sub-period.					
					Matti.	Nana.	Kindal.	Jamba.	Teak.	Sissum.
I	From 1909-10 to 1912-13.	XXIV.	1 to 7 ...	Number ...	1,431	484	1,921	857	676	145
				Yearly average...	358	121	480	214	169	36
		XXV.	44 to 46 ...	Number ...	431	375	1,274	634	460	96
				Yearly average...	108	94	318	158	115	24
		XXIV and XXV.		Total for sub-period.	1,865	859	3,195	1,491	1,136	241
				Total yearly average.	466	215	798	372	284	60
II	1913-14 to 1916-17.	XXIV.	8 to 11 ...	Number ...	741	198	780	213	314	145
				Yearly average...	185	49	195	53	78	36
		XXV.	47, 51 and 52.	Number ...	1,119	596	1,437	1,024	84	26
				Yearly average...	280	149	359	256	21	6
		XXIV and XXV.		Total for sub-period.	1,860	794	2,217	1,237	398	171
				Total yearly average.	465	198	554	309	99	42
III	1917-18 to 1920-21.	XXIV.	15 and 16 ...	Number ...	625	207	608	167	10	29
				Yearly average...	156	52	152	42	2	7
		XXV.	48, 49, 50 ...	Number ...	1,376	610	1,935	923	11	48
				Yearly average...	344	152	484	231	3	12
		XXIV and XXV.		Total for sub-period.	2,001	817	2,543	1,092	21	77
				Total yearly average.	500	204	636	274	5	19
IV	1921-22 to 1924-25.	XXIV.	17 to 19 ...	Number ...	1,423	414	1,982	462	...	111
				Yearly average...	356	103	495	115	...	28
		XXV.	53 to 55 ...	Number ...	623	151	942	410	196	149
				Yearly average...	156	38	235	102	49	37
		XXIV and XXV.		Total for sub-period.	2,046	565	2,924	872	196	260
				Total yearly average.	512	141	730	217	49	65
V	1925-26 to 1928-29.	XXIV.	20 to 23 ...	Number ...	1,280	382	2,389	501	11	29
				Yearly average...	320	95	597	125	3	7
		XXV.	64 and 65 ...	Number ...	431	465	454	188	...	8
				Yearly average...	108	116	113	47	...	2
		XXIV and XXV.		Total for sub-period.	1,711	847	2,843	689	11	37
				Total yearly average.	428	212	710	172	3	9
VI	1929-30 to 1932-33.	XXIV.	24 to 28 ...	Number ...	1,326	564	2,078	512	347	135
				Yearly average...	331	141	519	128	87	34
		XXV.	61 to 63 ...	Number ...	356	349	960	431	...	36
				Yearly average...	89	87	240	108	...	9
		XXIV and XXV.		Total for sub-period.	1,682	913	3,038	943	347	171
				Total yearly average.	420	228	759	236	87	43
VII	1933-34 to 1936-37.	XXIV.	29 and 32 ...	Number ...	263	556	599	572	131	10
				Yearly average...	66	139	150	143	33	2
		XXV.	56 to 60 ...	Number ...	1,680	234	1,086	445	156	22
				Yearly average...	420	58	271	111	39	6
		XXIV and XXV.		Total for sub period.	1,943	790	1,685	1,017	287	32
				Total yearly average.	486	197	421	256	72	8

Serial No.	Sub-period.	Block.	Compartments included in sub-periods.		Number of trees of different species available for felling during the sub-period.					
					Matti.	Nana.	Kindal.	Jamba.	Teak.	Sissum.
VIII	1937-38 to 1940-41.	XXIV.	33 and 40 ...	Number ...	1,063	589	893	561	207	141
				Yearly average...	266	147	223	140	52	35
		XXV.	41 to 43 ...	Number ...	656	287	1,488	731	261	56
				Yearly average...	164	72	372	183	65	14
		XXIV and XXV.		Total for sub-period.	1,719	876	2,381	1,292	468	197
				Total yearly average.	430	219	595	323	117	49
IX	1941-42 to 1944-45.	XXIV.	30, 31, 34, 35, 36, 37.	Number ...	907	660	1,721	657	19	31
				Yearly average...	227	165	430	164	5	8
		XXV.	66 and 67 ...	Number ...	761	748	1,287	931	...	20
				Yearly average...	190	187	322	233	...	5
		XXIV and XXV.		Total for sub-period.	1,668	1,408	3,008	1,588	19	51
				Total yearly average.	417	352	752	397	5	13
X	1945-46 to 1948-49.	XXIV.	12 to 14 and 38 and 39.	Number ...	1,531	1,025	1,824	995	144	157
				Yearly average...	382	256	456	249	36	39
		XXV.	68 to 70 ...	Number ...	546	266	631	263	...	31
				Yearly average...	136	66	158	66	...	8
		XXIV and XXV.		Total for sub-period.	2,077	1,291	2,455	1,258	144	188
				Total yearly average.	519	322	614	315	36	47

Mode of executing the fellings.

54. It is not necessary to fell during any given sub-period exactly $\frac{1}{4}$ of the area each year or to cut $\frac{1}{4}$ of the Matti, Nana, Kindal and Jamba available; they can be cut all in one year, if necessary; the only restrictions being that the number of trees felled during any one sub-period should not exceed the number provided for felling within that sub-period and that no trees of girth less than the minimum fixed should ever be felled.

55. The fellings of Matti, Nana, Kindal and Jamba in each sub-period will, generally speaking, begin in the east of the area and work westwards. It will be necessary first to go over approximately $\frac{1}{4}$th of the area marking all the largest trees sound and unsound; if in the 1st marking the prescribed number is not realized, it will be necessary to go over that area again with a view to selecting sufficient trees of the exploitable girth to make up the required number. If after the 2nd marking the trees are in deficit a rough survey of a further area should be made and the necessary number added. Similarly in the 2nd year of the sub-period. In the 3rd year the whole remaining area should be carefully inspected, so as to form an idea of what is left to be cut during the sub-period and so as to spread the yield as evenly as possible over the last two years.

56. Teak and Black-wood should be girdled 3 years before felling. As regards the other four principal species the value of girdling has not yet been fully established, but from experience gained in Yellápur and also in these forests during the last season (1907-08) girdling would appear to be beneficial. It will be better therefore to leave this question open, merely stipulating that until the question is definitely settled trees shall be girdled two years in advance of the fellings.

All girdled trees should be inspected six months after the operation to ascertain whether the work has been properly done.

57. In marking Matti it should be remembered that the "Water Blister" causes only local damage to the affected portion and that fine logs can often be cut from the non-affected parts of the tree.

58. As regards all species other than the four above enumerated, the exploitable trees should generally be cut in the main fellings, the only restriction being as regards the minimum girth provided for each species.

Forecast of the condition of the crop at the end of the cutting period.

59. Turning to Appendix IV we have at present the following number of trees in the 1st four classes :—

Species.	Class V 15" to 18".	Class IV 19" to 21".	Class III 22" to 24".	Class II 25" to 27".	Class I 28".
Matti—					
(*a*) Sound ...	.....	21,303	14,623	8,448	9,909
(*b*) Unsound ...	.....	10,184	9,847	8,172	13,318
Nana	.....	13,158	10,019	7,262	11,053
Kindal ...	.....	35,682	27,658	20,951	32,130
Jamba ...	28,239	15,678	7,194	4,464	.....

We have no means of estimating the loss of trees of each species while passing from the II to the I class, as class I is abnormal, it is therefore taken as 20 per cent. for all species. For the lower classes the percentages of loss are deducted from the actual figures as follows :—

Sound Matti	while passing from	class	III	to class	II—12	per cent.
Do.	do.	do.	IV	„	III—31	„
Unsound	do.	do.	III	„	II—17	„
Do.	do.	do.	IV	„	III—30	„
Nana	do.	do.	III	„	II—27	„
Do.	do.	do.	IV	„	III—24	„
Kindal	do.	do.	III	„	II—24	„
Do.	do.	do.	IV	„	III—22	„
Jamba	do	do.	IV	„	III—54	„
Do.	do.	do.	V	„	IV—44	„

60. The periods it takes the various species to pass from class III to class II and from class IV to class III, given in Appendix V, are as follows :—

Time taken for	Matti	to pass from	III	to class	II—25	years.
Do.	do.	do.	IV	„	III—24	„
Do.	Nana	do.	III	„	II—35	„
Do.	do.	do.	IV	„	III—29	„
Do.	Kindal	do.	III	„	II—22	„
Do.	do.	do.	IV	„	III—20	„
Do.	Jamba	do.	IV	„	III—31	„
Do.	do.	do.	V	„	IV—22	„

61. Now at the end of the present felling period of 40 years we shall have removed all class I + $\frac{1}{4}$ of class II, that is all mature trees and half the number of trees of class II which come over in front of the fellings, and as only half the total number of class II do come over in front of the fellings, we shall have cut $\frac{1}{4}$ of class II as stated above. As it takes 40 years approximately for class II trees to become class I, at the end of the felling period we shall have $\frac{3}{4}$ of the present class II, minus the number lost during transition, *i. e.*, 20 per cent.

62. If the 2nd felling period is again fixed at 40 years the number of stems available for felling during that period will be all the mature trees, namely, $\frac{3}{4}$ of the present class II minus 20 per cent. which will then have become class I as well as the trees that come over in front of the fellings from the lower classes.

63. As all the Matti, Nana and Kindal of class III and all the Jamba class IV become class II and class III respectively during the next 40 years, and as

the period taken in transition by each species is less than 40 years, a portion of the lower class will also pass over to class II, the actual proportion being regulated by the period taken by each individual species to pass from the lower to the higher class.

64. Deducting the percentage of trees lost in transition and taking 40 per cent. as the number of unsound Matti that will produce timber, the following will be the number of stems of each species available during the 2nd felling period:—

Sound Matti ... $\frac{3}{4}(8{,}448-20\%)+\frac{(14{,}623-42\%)+\frac{15}{24}(21{,}303-31\%)}{2}=13{,}904.$

Unsound Matti $\frac{40}{100}\left\{\frac{3}{4}(8{,}172-20\%)+\frac{(9{,}847-17\%)+\frac{15}{24}(10{,}184-31\%)}{2}\right\}=4{,}831$

Nana ... ... $\frac{3}{4}(7{,}262-20\%)+\frac{(10{,}019-27\%)+\frac{5}{29}(13{,}158-24\%)}{2}=8{,}877.$

Kindal ... $\frac{3}{4}(20{,}951-20\%)+\frac{(27{,}658-24\%)+\frac{18}{20}(35{,}682-22\%)}{2}=36{,}609.$

Jamba ... $\frac{3}{4}(7{,}194-20\%)+\frac{(15{,}678-54\%)+\frac{9}{22}(28{,}239-44\%)}{2}=11{,}157.$

65. In comparing the yield estimated for the lst felling period with that of the 2nd we get the following results :—

Species.	Number of trees to be cut during the first felling period.	Number of trees which will be available in the 2nd felling period.
Matti	18,906	18,735
Nana	9,333	8,877
Kindal	27,081	36,609
Jamba	12,216	11,157

The calculation for the first three species may be taken as more or less correct, while the calculation for Jamba cannot be relied upon, because the percentage of loss during transition as calculated from actual figures does not represent normal conditions, Jamba being the species of which much small wood under exploitable girth has been cut in past years, thus increasing the percentage to be deducted from the actual figures. Otherwise the number shown in column 3 would have been much higher.

D.—Supplementary Provisions.

66. The improvement fellings will be carried out in four different places; thus one improvement felling in each block will follow closely after the major fellings, and the other two improvement fellings will start in the centre of each block and proceed in advance of the major fellings. In this way when the major fellings have progressed for 20 years, the two advance improvement fellings will have reached the end of each block. By starting again from where they began they will fall in line behind the major fellings, while the other two improvement fellings which followed the major fellings during the first half of the felling period will re-start at the beginning and go over the first half of the area a second time.

The improvement fellings.

67. It must be remembered, however, that, owing to the irregular grouping of the compartments in the major fellings in forming sub-periods, the areas to be taken up for improvement-fellings will not follow in every case one year after the major fellings, though they have been so arranged as to do so whenever possible. In no case will they be more than four years behind the major fellings.

68. As stated in paragraph 12 there is a fairly large demand for small building material made by people living in the forest and the villages lying between these forests and the sea-coast. A good deal of material marked and cut out in the improvement fellings could be disposed of to permit-holders or sold standing to local purchasers. It is, therefore, proposed to restrict permit felling and free grants of timber entirely to the improvement felling areas, a rule that could not be enforced without hardships to the permit-holders were the improvement fellings not evenly distributed over the whole area.

69. The privilege holders have been assigned minor forests by the Forest Settlement Officer, in which they may cut certain species according to the Kánara Protected Forest Rules. In these areas, though they have been included in the Working Plan, the privilege holders must be allowed to exercise their privileges as they like irrespective of the improvement-felling series. Further they may be allowed to cut and remove *Strobilanthes* free of charge from any portion of the forest not specially closed : also barren sago and other palms and canes on permits issued free by the Forest authorities.

70. Enough stress cannot be laid on the importance of the improvement fellings, the whole future of the forest crop being bound up in these operations. No hard and fast rules can be laid down as regards the mode of executing such fellings as each locality must be treated according to its requirements. In executing the improvement fellings the following points should, however, be borne in mind :—

(*a*) That where the existing seedling crop is fairly well represented, as is generally the case, the object should be to improve this rather than to attempt to bring new seedlings into existence.

(*b*) That Teak and Matti are 'par excellence' light demanders requiring light both for germination and when established. Kindal is not far behind them in this respect, Nana and Black-wood will stand lateral shade in youth, while Jamba is a heavy shade-bearer.

(*c*) That Jamba reproduces itself profusely, a fact which together with its shade-bearing habits forms a danger to the more valuable species, in that it has a tendency to crowd them out. As a nurse under established growth it is of great value.

(*d*) That the existing patches of Teak, which are often found surrounded by other deciduous forest, can be enlarged and materially improved by judicious fellings round the perimeter of the groups. The freeing of even poorly grown Teak seedlings will be advantageous, in that the number of seed-bearers on the perimeter of the Teak-bearing areas will be increased. Outlying Teak away from the main group should be carefully preserved.

(*e*) That the fear of denuding the slopes of soil under the selection system is not great, so that improvement fellings may be carried out both on the level ground and on the hill-sides.

(*f*) That there are a great number of faulty trees in these forests, especially of Matti. If absolutely unsaleable those of the better species should generally be left unless they endanger advance-growth. It will, however, probably be possible to sell standing or to give on permit the less faulty trees marked in the improvement fellings, while if, for sylvicultural reasons, inferior unsaleable species are required out of the way they should be girdled, otherwise they should be left standing.

(*g*) It may be laid down as a strict rule for all localities that creeper cutting should be rigidly enforced.

(*h*) That there are many blanks in the forest where former cultivation existed; to dibble up these areas with the more valuable species is necessary. To do so with success without temporary Bamboo fencing is out of the question, as cattle and deer continually graze over such areas.

(*i*) That the growth of Karvi (*Strobilanthes callosus*) in many places is very heavy and is a direct check on natural regeneration. To get rid of this weed is difficult, though probably not impossible. In the Jaunsar Division areas were successfully treated in 1906 by cutting *S. Wallichi* when the flowers were fully out and the fruit had begun to form, but was not actually ripe. The *Strobilanthes callosus* flowers every seventh or eight year in North Kánara and then dies down, so that, at the period of flowering, it might be treated in a similar way with advantage. It should be borne in mind that cutting off the heads of Karvi when it first commences to flower is useless, as it then puts out sideshoots which flower later; it can therefore only be treated when the flowers begin to fall. The time of flowering is given as September and October.

(*j*) That in many compartments the growth of Bamboos is very heavy; where the crop is mature they are, no doubt, a benefit; but where young growth exists they are very much the reverse, that is, individual clumps shading advance-growth. Bamboos should be sold on permit as much as possible from all parts of the forest, especially from the sub-period under exploitation. Individual culms endangering young trees of the better species should be removed whenever possible.

Statement of Improvement fellings.

Block.	Compartment.	Area in acres.	Years in which improvement fellings will be made.	Remarks.
XXIV.—Improvement-felling, Series A.	1	426·4	1910-11 and 1930-31.	
	2	655·2	1911-12 and 1931-32.	
	3	276·8	1912-13 and 1932-33.	
	4	674·4	1913-14 and 1933-34.	
	5	382·8	1914-15 and 1934-35.	
	6	554·8	1915-16 and 1935-36.	
	7	674·8	1916-17 and 1936-37.	
	8	620·0	1917-18 and 1937-38.	
	9	618·0	1918-19 and 1938-39.	
	10	516·4	1919-20 and 1939-40.	
	11	480·8	1920-21 and 1940-41.	
	15	434·8	1921-22 and 1941-42.	
	16	524·4	1922-23 and 1942-43.	
	17	429·2	1923-24 and 1943-44.	
	18	719·6	1924-25 and 1944-45.	
	19	737·2	1925-26 and 1945-46.	
	20	729·2	1926-27 and 1946-47.	
	21	759·0	1927-28 and 1947-48.	
	22	633·2	1928-29 and 1948-49.	
	23	736·4	1929-30 and 1949-50.	
XXIV.—Improvement-felling, Series B.	24	730·4	1910-11 and 1930-31.	
	25	585·6	1911-12 and 1931-32.	
	26	798·0	1912-13 and 1932-33.	
	27	467·2	1913-14 and 1933-34.	
	28	577·2	1914-15 and 1934-35 ...	In this compartment the second improvement-fellings are advanced by one year to make up the loss which will occur in compartments 30 and following.
	29	566·4	1915-16 and 1935-36.	
	32	705·6	1916-17 and 1936-37.	
	33	750·8	1917-18 and 1937-38.	
	40	666·0	1918-19 and 1938-39.	

Block.	Compartment.	Area in acres.	Years in which improvement fellings will be made.	Remarks.
XXIV.—Improvement-fellings, Series B.	30	614·8	1919-20 and 1941-42 ...	In these five compartments the second improvement-fellings are retarded all through by two years to allow the major fellings to pass through the area in front of them.
	31	392·0	1920-21 and 1942-43 ...	
	34	566·8	1921-22 and 1943-44 ...	
	35	578·2	1922-23 and 1944-45 ...	
	36	612·4	1923-24 and 1945-46 ...	
	37	500·0	1924-25 and 1945-46.	
	12	618·0	1925-26 and 1946-47.	
	13	893·6	1926-27 and 1947-48.	
	14	344·4	1927-28 and 1948-49.	
	38	385·6	1928-29 and 1948-49 ...	In this compartment the second improvement-fellings are advanced by one year to make up the loss which occurred in compartments 30 and following.
	39	910·4	1929-30 and 1949-50.	
XXV.—Improvement-felling, Series C.	44	562·8	From 1910-11 and 1930-31 to From 1913-14 and 1933-34	Three compartments have been grouped together for working during four years to prevent the improvement-fellings getting ahead of the major fellings.
	45	775·0		
	46	553·2		
	47	740·0	From 1914-15 and 1934-35 to From 1917-18 and 1937-38	
	51	694·8		
	52	657·6		
	48	605·2	From 1918-19 and 1938-39 to From 1921-22 and 1941-42	
	49	798·0		
	50	667·6		
	53	730·0	From 1922-23 and 1942-43 to From 1925-26 and 1945-46	
	54	590·0		
	55	642·8		
	64	641·2	From 1926-27 and 1946-47 to From 1929-30 and 1949-50	
	65	729·2		
XXV.—Improvement-felling, Series D.	61	656·8	From 1910-11 and 1930-31 to From 1913-14 and 1933-34	Three compartments have been grouped together for working during four years to prevent the improvement-fellings getting ahead of the major fellings.
	62	634·4		
	63	542·4		
	56	793·2	1914-15 and 1934-35.	
	57	792·4	1915-16 and 1935-36.	
	58	624·4	1916-17 and 1936-37.	
	59	720·8	1917-18 and 1937-38.	
	60	732·8	1918-19 and 1938-39.	
	41	442·8	1919-20 and 1939-40.	
	42	610·0	1920-21 and 1940-41.	
	43	706·0	1921-22 and 1941-42.	
	66	959·2	From 1922-23 and 1942-43 to From 1925-26 and 1945-46	
	67	1210·0		
	68	644·0	From 1926-27 and 1946-47 to From 1929-30 and 1949-50	
	69	794·4		
	70	659·2		

Fire protection.

72. In these moist deciduous forests fires are not frequent except in the drier Teak-bearing areas, which form but a small part of the whole. The benefit derived from fire protection in the greater part of the area is somewhat doubtful. The general tendency of these forests is to pass gradually from moist deciduous to a state of evergreen forest. The process is without doubt very slow, and, provided the forests are kept fairly open of undergrowth and natural regeneration of Jamba, the more valuable light-demanding species such as Teak, Matti, Kindal, Nana, etc., will continue to form the greater part of the growing stock. The fires that occur in these areas are by no means severe, but are of sufficient intensity to check the heavy growth of weed and, though they no doubt damage seedling growth also, the amount of damage done is probably relatively less than the benefit derived by the checking of the growth of weeds. In support of the above rather unorthodox theory it may be stated that where fires most often occur, namely near cultivation and along road-sides, the regeneration of Teak, Matti and Kindal is very much in evidence.

Regulation of grazing.

73. There are no good grazing grounds in the Working Circle composed of Blocks XXIV and XXV. The cattle are poor animals picking up a precarious livelihood on the old cultivated fields along the nallas and in areas adjoining cultivation. The number of cattle for which grazing is allowed and the area put aside for their grazing has been fixed by the Forest Settlement Officer. The area allotted to each village has, generally speaking, been fixed at 3 acres for each head of cattle and comprises the waste lands, Betta areas and minor forest, while in the event of the total area of these three classes of land being insufficient a portion of Reserved forest has been allotted. The areas of Reserved forest to be put aside for grazing will have to be given in the neighbourhood of the villages to which the cattle belong.

A detailed statement showing the name of the village, the number of cattle, the areas available in waste lands, Betta areas, and minor forest and the further area of Reserved forest required for grazing and the locality of such areas is given in Appendix VII. From this statement it will be seen exactly how the requirements of each village have been met, both inside and outside the organized area. The figures are those given by the Forest Settlement Officer and are not the scaled areas obtained by the Working Plan Officer. The number of cattle brought into these forests for grazing from outside is very limited, chiefly owing to the want of grass and the unhealthiness of the climate. If, at any time, attempts were made to bring large herds of cattle into these forests from outside, strong measures to stop them should be taken by the Divisional Forest Officer with the approval of the Collector.

Keeping the compartment boundaries clear.

74. The compartment boundaries which are demarcated by cut lines 25 feet broad should be kept clear of undergrowth, while the natural boundaries which have been marked by blazing the trees on either side of the line should be reblazed at intervals of not less than 8 years.

Roads and buildings.

75. On the north of the river in Block XXIV, along the Kárwár Yellápur road, there are rest-houses, and with the exception of two small feeder roads in the Sunksal and Marugadda valleys nothing is wanted to facilitate exploitation work and inspection.

South of the river in Block XXV there are no roads, rest-houses or even country tracks except in the extreme west near Hossakumbi, where a good forest road exists running up the Chándgár valley. It will be necessary to open out this area by making a fair-weather road starting from a point a mile up the Chándgár road from Hossakumbi, and running more or less parallel to the river to Dongri and so over the Malgaon saddle to Kankanhalli, a distance of about 8 miles. Another road will be necessary from Kotha, on the river to Unchalli, running through compartments 45, 47, 48, 49 and 50, so as to tap the Halvalli valley, the distance being some 5 miles. These two roads will meet near Kankanhalli and so join up the South Block *viá* the Yekeguli and Pattanpar fords

with the main road to Hattikeri Depôt and also with the Ankola-Kumta road at Madangeri. The proposed alignment of these two roads is shown on the index map.

76. There are no inspection bungalows in Block XXV, while the camping grounds are very poor. There is a Public Works Department inspection bungalow at Madangeri, some 12 miles from Hossakumbi, a village just inside the organized area. Again from Hossakumbi to Kankanhalli is 10 miles, so that, provided the Hossakumbi-Kankanhalli road is constructed, an inspection bungalow should be made somewhere near Hossakumbi and a second at Kankanhalli, which would enable Inspecting Officers to completely supervise the South Block, a work which at present is extremely difficult and can only be done by moving one's kit by headloads, owing to the want of cart tracks. Besides the above buildings a Round Forester's house will be necessary at Kankanhalli.

E.—Miscellaneous.

Changes proposed in the forest staff.

77. The area at present is controlled by a Ranger who has also forests outside the organized area of the Ankola Range in his charge. Within the area there are two Round Foresters' charges and a portion of a third, while the beat guards number 13 in all. It will be necessary to re-arrange the distribution of the staff in the whole Range and somewhat increase the same to ensure an efficient working of the plan.

78. The following is a statement of the present staff and that proposed :—

Present Establishment.

Name of Round.	Round Forester or Guard.	Name of Beat.	Beat Guards.
I.—Ramangulli ...	1	Ramangulli ...	2
Do. ...	...	Do. ...	1 personal guard.
II.—Honalli ...	1	Honalli ..	2
Do. ...	...	Do. ...	1 personal guard.
Do. ...	...	Sunksal ...	2
III.—Hossakumbi ...	1	Hossakumbi ...	2
Do. ...	...	Do. ...	1 personal guard.
Do. ...	...	Gundbala ...	2
	3		13

Proposed Establishment.

Name of Round.	Round Forester or Guard.	Name of Beat.	Beat Guards.
I.—Ramangulli ...	1	Ramangulli ...	2
Do. ...	...	Do. ...	1 personal guard.
Included in Ramangulli ...	...	Kodalgadda ...	2
II.—Honnalli ...	1	Honnalli ...	2
Do. ...	...	Do. ...	1 personal guard.
Do. ...	...	Sunksal ...	2
III.—Hossakumbi ..	1	Hossakumbi ...	2
Do. ...	...	Do. ...	1 personal guard.
Do. ...	...	Gundbala ...	2
IV.—Kankanhalli ...	1	Kankanhalli ...	2
		Do. ...	1 personal guard.
	4		18

79. The Hossakumbi round is partly within the organized area and partly outside it. This round official will not have his jurisdiction changed under the new proposals as regards the portion outside the organized area. The new proposals resolve themselves into having two more guards up the Kodalgadda valley and the formation of a new round in Block XXV to control the Shavkar and Halvalli valleys which are at present under the nominal charge of the Ramanguli Round Official, whose head-quarters and work up the Kodalgadda valley take him far away from these forests.

Forecast of financial results.

80. It is extremely difficult to frame an estimate of the probable revenue.

From the past fellings covering a period of 10 years, given in paragraph 22 of this report, we get the following figures :—

Species.	Number of trees felled both green and dead.	Number of cubic feet produced by these logs.	Average sub-contents of each tree.	In tons per tree.
		Cubic feet.	Cubic feet.	
Matti	4,327	243,774	56	1·12
Nana	2,555	118,174	46	·92
Kindal	196	12,004	61	1·22
Jamba*	47	1,277	·29	·58

* Not including sleepers.

Taking the above figures as the normal volume of each species and putting the value of the wood at a somewhat low figure we get the following results :—

Species.	Annual number of trees to be exploited.	Tons.	Present market value per ton.	Cost of extraction per ton.	Net profit in Rupees.
			Rs. a. p.	Rs. a. p.	
Matti ...	470	1·12	56 0 0	20 0 0	18,950
Nana ...	230	·92	36 0 0	20 0 0	3,386
Kindal ...	670	1·22	32 0 0	20 0 0	9,809
Jamba ...	300	·58	32 0 0	20 0 0	2,088
	1,670	.....	.....	.....	34,233

It is probable that it will not be possible to sell all the 670 Kindal at present, though there seems every prospect of it being possible to do so in the near future.

To the above must be added the other trees to be felled, such as Teak, Sissum, Heddi, Honni, etc., together with the wood sold from the improvement fellings, which should fetch a net profit of at least Rs. 5,800 a year, bringing the total up to Rs. 40,000 net profit per annum, which figure will probably greatly increase in the near future.

Control books to be kept.

81. Forms 2, 3 and 4 as prescribed in the Forest Department Code must be carefully kept. Special notes should be kept of the number of Matti trees felled which are affected by the "water-blister" and the cubical contents of the same. Remarks should also be recorded as to whether the prescribed number of trees are easily found or not. Care should be taken to record correctly what work has been undertaken in each compartment under the improvement fellings.

It would be well to fix half a dozen experimental sample plots well distributed over the area in which annual measurements of each tree should be taken so as to fix the rate of growth of the more important species, especially in advanced age.

RALPH S. PEARSON, I.F.S., F.L.S.,

Divisional Forest Officer,

Working Plans, S. C.

F.—Appendices.

The following appendices accompany the report:—

I. 4″ stock maps showing quality, areas, growing stock, blocks and compartments. (Not embodied in the report).

II. 1″ Index Map.

III. Description of compartments.

IV. (*a*) Record of valuation surveys, and number of trees in each compartment.

(*b*) The estimated number of trees each compartment will produce as it comes under felling.

V. Record of rate of growth of the various species, showing the increments for periods of 5 years.

VI. Area statement.

VII. Statement showing the population, number of cattle of each village and grazing arrangements made for the same.

VIII. Names of the more common species found in these forests.

IX. Statement of revenue recovered for all produce removed from the area during the last 10 years.

(Signed) R. S. PEARSON, I.F.S., F.L.S.,
Divisional Forest Officer,
Working Plans, S. C.

Kárwár, 10th November 1908.

Approved,
(Signed) L. SWIFTE,
Collector of Kánara.

Approved,
H. MURRAY,
Conservator of Forests, S. C.

Approved,
G. MONTEATH,
Acting Collector.

Approved,
M. C. GIBB,
Commissioner, S. D.

Countersigned,
W. A. TALBOT,
Conservator of Forests, C. C.,
and Superintendent, Working Plans.

APPENDIX III.

Description of Compartments.

BLOCK No. XXIV.

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
1	426·4	*North.*—Compartment 2 and a blazed line up to Uzar Nalla. *East.*—Compartments 2 and 4. *South.*—A small nalla dividing compartments 1 and 11. *West.*—The Uzar Nalla.	(*a*) *Configuration.*—The whole compartment has a western aspect, with a fairly steep gradient, rising from 200 feet at the bed of the river to 1,670 feet on the crest of the ridge. (*b*) *Rock and Soil.*—The rock is quartzite, and granite of poor quality turning in places to basalt. The soil is deep in the north and poorer up the hill sides. The surface of the ground is covered with fragments of rock which have been broken off on the ridge and rolled down the slopes.	(*a*) *Growing Stock.*—Generally speaking this compartment contains growth of the 2nd class. Teak is found scattered over the northern half of the area, but is nowhere of exploitable size. Some fair Matti trees occur north of the Kodalgadda, Mavinmani footpath, standing in semi-evergreen forest. Along and above the nalla is found a fair growth of Kindal, Matti, Jamba mixed with a few Nana, Sissum, Dhamni and inferior species, while on the higher slopes the growth falls off, becoming more open towards the crest of the ridge. (*b*) *Regeneration.*—Fair throughout except in the evergreen patches. (*c*) *Undergrowth.*—In places evergreen, and where the forest assumes a more deciduous character, patches of Karvi, Chiva and bamboos appear. (*d*) *Grazing.*—The area is little subjected to grazing except by a few head of cattle from the villages of Chavdi in the north and of Satemani in the south.	1 Matti— (*a*) Sound ... 11·6 (*b*) Unsound . ·7 2 Nana ... 1·3 3 Kindal ... 14·9 4 Jamba ... 10·5 5 Teak ... ·3 6 Sissum ... 3·9 7 Honni ... ·1 8 Heddi ... ... 9 Dhamni ... 1·1 10 Apta ... ·3 11 Jambul ... ·6 12 Womb ... ·1 13 Karsing ... ... 14 Bharnigi ... ·4 15 Other species . 54·2		The extraction of timber will be found difficult from this compartment owing to the configuration of the ground, and the semi-evergreen character of part of the forest.
2	655·2	*North.*—A small tributary of the Kodalgadda Nalla, and a cut line up the east ridge of the 1,777 feet hill, east of Mavinmani village. *East.*—A tributary of the Kodal gadda Nalla and Kandarmani or Advi Nalla. *South.*—Compartment 4. *West.*—Compartment 1 and a cut line along the ridge between the 1,850 feet and 1,777 feet hills, east of Mavinmani village.	(*a*) *Configuration.*—The whole compartment has an east aspect, the gradient being in most places, very steep, except in the north-west and south-west corners; rising from 200 feet on the bed of the river to 1,850 feet on the crest of the ridge. The slopes are everywhere intersected by small streams running west to east. (*b*) *Rock and Soil.*—The rock comes to the surface in many places, being nearly everywhere milky quartz. The soil is fair on the lower slopes and in the depressions, becoming shallow on the upper slopes. Fragments of rock cover the soil everywhere.	(*a*) *Growing Stock.*—The lower half of the compartment is good forest containing much well grown Matti, Kindal, Sissum and Jamba mixed with some Nana, Womb, Bharnigi and a few Apta, Dhamni and in places many inferior species. Teak up to a fair size is scattered throughout these lower slopes, and is in places of a very promising nature. To the south-west occurs a patch of evergreen forest situated on somewhat flat ground, while most of the north-west gently sloping ground is covered with a stunted growth of Matti and Kindal intersected with patches of evergreen forest. (*b*) *Regeneration.*—Up to abont the 1,200 feet contour line seedlings of Jamba, Kindal and Sissum are found in abundance, and Teak seedlings are numerous in Teak bearing localities. Scattered here and there may also be seen seedlings of the more inferior species such as Karmal, Kumbia and Joting. (*c*) *Undergrowth.*—For the most part in the better stocked areas the undergrowth except seedlings, is nil, while on the upper slopes Karvi, Chiva and evergreen patches are found to exist. Bamboos are only found locally. (*d*) Grazing is restricted to the edge of the cultivation and is nowhere heavy.	1 Matti— (*a*) Sound ... 12·2 (*b*) Unsound... 1·7 2 Nana ... 2·1 3 Kindal ... 14·0 4 Jamba ... 14·1 5 Teak ... 1·8 6 Sissum ... 1·8 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... 1·8 10 Apta ... ·3 11 Jambul ... ·7 12 Womb ... ·9 13 Karsing ... ... 14 Bharnigi ... ·7 15 Other species . 47·9		The area, which contains many exploitable trees, will be difficult to work owing to the steep nature of the ground.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
3	276·8	*North.*—Kodalgadda Nalla. *East.*—Kodalgadda Nalla and cultivation. *South.*—Compartment 5. *West.*—Compartment 2.	(*a*) *Configuration.*—The compartment contains two hills rising to 878 and 959 feet respectively, joined by a ridge, the gradient in places steep, facing all aspects. (*b*) *Rock and Soil.*—On the lower situations laterite is found, turning to metamorphosed sand stone, and crystaline shales on the upper slopes, the latter rocks being intersected with narrow views of milky quartz. The soil is deep at the south end of the compartment becoming shallow on the slopes, the surface of the ground being covered with fragments of rock.	(*a*) *Growing Stock.*—In the south-east, along the Local Fund Road, poor very much hacked forest exists containing poor Matti, Kindal, Heddi, Hirda, Jamba, Sissum and a few Honni together with inferior species. On the slopes of the hills are found fine Kindal, Nana, Matti, Jamba, some Sissum, patches of Teak and small Karsing. Round the tops of the hills the forest is more open and on a small plateau in the centre of the compartment are some large Teak, Heddi and Jamba, a patch of Teak is to be found along the stream in the south-west of the compartment. (*b*) *Regeneration.*—Seedlings of Jamba and Kindal are found here and there but are not numerous owing to the heavy Karvi growth. (*c*) *Undergrowth.*—Heavy Karvi growth covers nearly the whole area, and bamboos occur sparodically aloves the compartment. (*d*) *Grazing.*—Grazing is not heavy being confined to the Southern portion near the cultivation and along the road side.	1 Matti— (*a*) Sound ... 2·8 (*b*) Unsound . 1·1 2 Nana ... 9·8 3 Kindal ... 23·0 4 Jamba ... 22·2 5 Teak ... 3·2 6 Sissum ... 3·5 7 Honni ... 1·1 8 Heddi ... ·4 9 Dhamni ... 1·5 10 Apta ... ·4 11 Jambul ... ·3 12 Womb. ... 2·7 13 Karsing ... 2·7 14 Bharnigi ... ... 15 Other species . 25·3	There should be no great difficulty in exploiting this compartment, with one of its boundaries being the Local Fund road and the gradients favouring such work.
4	674·4	*North.*—The Kodalgadda Mavinmani foot-path. *East.*—The Advi Nalla. *South.*—A nalla and a cut line dividing compartments 4 and 7. *West.*—Cut line on crest of ridge dividing compartments 1 and 4.	(*a*) *Configuration.*—Aspect east throughout, the gradient moderate to steep, the whole hill side being intersected by small nallas running west to east into the main stream. (*b*) *Rock and Soil.*—The rock is composed of crystaline schists, shales and granite of inferior quality. The upper and lower slopes being less steep are covered with fairly deep soil, while on the middle and steeper slopes the soil is shallow. The area is covered with loose stones broken off from the readily disintegrating soft granites.	(*a*) *Growing Stock.*—The whole area is covered with scattered Teak some of considerable size, being denser on the lower slopes, near the cultivation, than higher up the hill. The lower and upper slopes contain good growth of Matti, Kindal, Jamba, both of advanced growth and mature trees. With the above species are found some Sissum and Dhamni though not of large size, Womb, Karsing and Nana mixed with inferior species. The middle slopes are well stocked but the growth is less favourable than on the less steep gradients. (*b*) *Regeneration.*—The regeneration of Matti in the open glades is fair, being chiefly confined to the upper and lower more level portions of the compartment. Seedlings of Teak, Jamba, Kindal and Kharsing are found scattered here and there, but are not abundant, probably owing to the full stocking of the area. (*c*) *Undergrowth.*—Bamboos abound nearly all over the area, and in such places where they do not occur patches of Karvi are to be found. Towards the ridge small patches of Karvi and Chiva occur; with the exception of the bamboos the undergrowth may be said not to be heavy. (*d*) A few head of cattle graze in the east portion of the compartment, otherwise the area is free from grazing.	1 Matti— (*a*) Sound. ... 9·8 (*b*) Unsound ... 1·7 2 Nana ... 2·5 3 Kindal ... 16·8 4 Jamba ... 22·4 5 Teak ... 4·6 6 Sissum ... 3·4 7 Honni ... ·4 8 Heddi ... ·3 9 Dhamni ... 1·6 10 Apta ... ·3 11 Jambul ... ... 12 Womb ... 1·2 13 Karsing ... ·9 14 Bharnigi ... ·1 15 Other species . 34·0	There may be some difficulty in extracting trees from the top of the ridge but as the material is good on the upper slopes it will be possible to do so at a profit.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
5	382·8	*North.*—A cut line dividing compartments 3 and 5. *East.*—The Kodalgadda Nalla. *South.*—A cut line dividing compartments 5 and 6. *West.*—The Advi Nalla.	(*a*) *Configuration.*—The south-east half of the compartment lies on fairly level ground. In the north-west half occurs a hill rising to 668 feet, giving all aspects, the gradients of which are fairly steep. (*b*) *Rock and Soil.*—On the lower ground, in south-west of the compartment laterite occurs, while on the hill are found soft granites, highly admixed with quartz. The soil is deep and rich at lower elevations, becoming somewhat poor on the upper slopes.	(*a*) *Growing Stock.*—Along the Local Fund road and east to the main stream, good Teak, Matti, Kindal and Jamba forest occurs, mixed with large bamboos. To the west of the compartment along the cultivation is another patch of Teak. On the lower and southern side of the hill fine sound Matti, Kindal and Jamba forest exists, mixed with a few Nana, Sissum, Womb, Dhamni and inferior species. In the north-west of the compartment the growth is somewhat inferior to the rest of the growing stock, inferior species and bamboos predominating. (*b*) *Natural regeneration.*—Except of Jamba is rather scarce, Teak seedlings being noticeable by their absence. On the hill side some few seedlings of Sissum, Dhamni, Kindal and Womb occur. (*c*) *Undergrowth.*—Between the Local Fund Road and the river many large Bamboo clumps occur, becoming scarcer on the hill side. Besides bamboos, the undergrowth is not dense. (*d*) *Grazing.*—Light grazing is carried on all over the area, being more common in the north-east of the compartment than elsewhere.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species...	 7·0 2·1 2·4 22·5 27·5 ·4 3·8 ·6 ·1 2·2 ·1 ·1 3·1 1·3 ... 26·8	Extraction from this compartment should be easy with a good Local Fund Road through it, and no real steep gradients.
6	554·8	*North.*—A cut line between compartments 5 and 6. *East.*—The Ganga Nalla River. *South and South-West.*—An old Public Works Road. *West.*—The Ksndarmani or Advi Nalla.	(*a*) *Configuration.*—To the south and east of the compartment the land slopes gently down to the Advi and Ganga Nallas, respectively. To the north-west is a hill rising with moderate gradients to 583 feet. (*b*) *Rock and Soil.*—In the low lying ground laterite occurs, while the hill is formed of basalts intersected with veins of milky quartz. The soil is deep near the rivers, being composed of disintegrated laterite, intermixed with fragments of crystalline rock. The soil on the hill side is shallow.	(*a*) *Growing Stock.*—Teak is found in small quantities all over the area, few trees being of exploitable girth. The forest is good throughout; in the south, on lowlying ground, it contains excellent Matti and Nana of all ages, mixed with Kindal, Dhamni, Jamba, Sissum and many Kumbia and Karmal. On the east side of the hill the forest is rather open, matters, however improve towards the top where a few scattered Teak exist, mixed with many Womb Nana, Kindal, Jamba, and a few Matti. Between the Local Fund Road and the river is a belt of Teak, Matti and Nana jungle, which together with large bamboos forms good forest. (*b*) *Natural regeneration.*—Regeneration is good in the more open portions to the east and practically nil under the dense Karvi and bamboo growth. (*c*) *Undergrowth.*—Many large bamboo clumps exist on the level ground, while on the hill side, a high growth of Karvi is found. Patches occur here and there with no undergrowth except seedlings of Kindal, Jamba and Womb. (*d*) *Grazing.*—The grazing is practically nil.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul .. 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species...	 3·6 1·9 6·3 17·8 27·7 1·2 2·5 ·3 ... 4·6 ·5 ·6 4·9 1·2 ·1 26·8	This compartment being easily accessible will afford no difficulty for exploitation. The forest growth is here very favourable, trees of all ages exist, and provided some of the undergrowth can be got rid of there will be no harm if the exploitation is of a somewhat heavy nature, as much advanced growth is present.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
7	674·8	*North.*—A small tributary of the Advi or Kandarmani Nalla. *East.*—The Advi or Kandarmani Nalla. *South.*—Bedti River. *South-West.*—A small tributary of the Gangavali or Bedti River. *West.*—A cut line along the crest of the Ujrali-Kodalgadda ridge.	(*a*) *Configuration.*—Aspect south-east throughout. The compartment is situated on the east slope of the Ujralli-Kodalgadda ridge. The gradients are gently at first starting from about 200 feet on the Advi River, become heavier on rising up the slopes, until near the top of the ridge, at an altitude of 1,606 feet, they become precipitous. The whole hill side is drained by small torrents which run into the Advi River. (*b*) *Rock and Soil.*—The ridge is composed of crystalline rock, chiefly granites and olivine schists. The rock crops out towards the top of the slopes, while the lower slopes are covered with fragments of rock broken off from above. The soil is fair and good at the base of the ridge and poor on the slopes.	(*a*) *Growing Stock.*—Teak is found scattered throughout the compartment, especially on the upper slopes of the ridge, some trees being of exploitable size though of no great height growth. At the base of the hill, on what was probably old cultivation, is fair young growth of Matti, mixed with Jamba, Kindal and many inferior species. On the first slope the forest is good, containing exploitable Matti and Kindal, while the Nana, Sissum, Honni, Dhamni and Womb is of smaller size. Most of the mature Jamba has been exploited for sleepers. Towards the top of the ridge the forest is somewhat open though the growth is by no means of inferior quality. (*b*) *Natural regeneration.*—The regeneration is practically nil on the slopes, where heavy Karvi growth exists. On the lower ground seedlings of Matti, Kindal, Womb, etc., are to be found, while towards the crest of the ridge Sissum, Womb, a few Teak, Jamba and Kindal seedlings have appeared. (*c*) *Undergrowth.*—Dense Bamboo on the lower slopes turning to Karvi on the middle slopes, and Chiva and a few Bamboos towards the ridge. (*d*) *Grazing.*—Grazing is confined to the level ground round the Kodalgadda footpath.	1 Matti— (*a*) Sound ... 9·6 (*b*) Unsound... 1·6 2 Nana ... 3·6 3 Kindal ... 14·6 4 Jamba ... 22·0 5 Teak ... 6·6 6 Sissum ... 2·7 7 Honni ... 1·8 8 Heddi ... ·2 9 Dhamni ... 1·8 10 Apta ... ·8 11 Jambul ... ... 12 Womb ... 1·3 13 Karsing ... ·8 14 Bharnigi ... ... 15 Other species . 32·6		Exploitation will be somewhat difficult in this compartment owing to the steep nature of the ground.
8	620·0	*North.*—Compartment 7, the boundary being formed by a small nalla falling into the Bedti River. *East.*—The Bedti River. *South.*—The Bedti River. *West.*—A cut line running from the main road to the crest of the ridge, and a small nalla running into the Bedti River on the south of road.	(*a*) *Configuration.*—Aspect south turning south-east. The compartment is situated on the south-eastern slopes of the Ujrali-Kodalgadda ridge. Between the road and the Bedti River the ground is practically flat. Crossing the road to the north the gradient rises sharply from 180 feet on the road to 1,546 feet on the ridge, the slopes towards the crest of the ridge being near precipitous. The whole area is drained by small nallas running into the main stream. (*b*) *Rock and Soil.*—The underlying rock is crystalline, being composed of granites, basalts and olivine schists. The soil is deep on the lower ground, fair on the top of the ridge and hard and shallow on the slopes. The surface of the ground on the slopes is covered with fragments of rock and pieces of milky quartz.	(*a*) *Growing Stock.*—Teak occurs in fair quantities on the upper slopes, attaining exploitable size. It is also found in other portions of the compartment, but only in small quantities. Above the road and on the middle slopes the growth is poor and somewhat open, while on the upper slopes and south of the road, good Matti, Kindal and Jamba forest exists. Nana and Sissum is found in fair quantities but does not often attain the 1st class quality, while Honni, Dhamni and Haddi are poorly represented. Bamboos are very plentiful west of the road but do not attain a great size. (*b*) *Natural regeneration.*—The upper slopes contain scattered regeneration of Jamba, Teak, Sissum, Kindal, while round the cultivated plots and in more open places on the flat ground Matti, Teak, Jamba and Kindal seedlings have established themselves. Throughout the compartment advanced growth is noticeable. (*c*) *Undergrowth.*—Heavy Bamboo growth occurs north of the road. Karvi and Bamboo intermixed exists on the lower slopes and Chiva and high Karvi prevails on the upper slopes and ridge. (*d*) *Grazing.*—Grazing is confined to the area between the road	1 Matti— (*a*) Sound ... 12·7 (*b*) Unsound... 3·2 2 Nana ... 1·9 3 Kindal ... 13 1 4 Jamba ... 20·0 5 Teak ... 2·1 6 Sissum ... 2·0 7 Honni ... ·6 8 Heddi ... ·4 9 Dhamni ... 1·1 10 Apta ... ·3 11 Jambul ... ·6 12 Womb ... ·2 13 Karsing ·3 14 Bharnigi ... ·2 15 Other species . 41·3		Exploitation should present little difficulty with the Kárwár-Yellápur Road running at the foot of the slopes. The crop is a mixed one and in places open, it will be possible to do a good deal by forcing advanced Teak and Matti growth.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
9	618·0	*North and West.*—A cut line up the Ujrali-Kodalgadda ridge, and part of main road, and Ujar Nalls. *East.*- A cut line between compartments 8 and 9 and a small Nalla. *South.*—The Bedti or Gangavali River.	(*a*) *Configuration.*—Aspect south-east. The compartment is situated on the east slopes at the south end of the Ujrali-Kodal g a d d a ridge. It rises from 150 feet at the river to about 1,500 feet in the extreme north. The gradient is gentle on the lower slopes becoming nearly precipitous at the ridge, while the whole drains directly into the main stream. (*b*) *Rock and Soil.*—The rock near the river is metamorphic, on rising up the slopes it changes to granite and semi-metamorph o s e d shales, being intersected with veins of quartz The surface of the slopes are covered with boulders and fragments of rock, The soil near the river is alluvial, rich and favourable to tree growth. The slopes are covered with shallow soil, formed by the de-composition of the crystalline rocks.	(*a*) *Growing Stock.*—Essentially deciduous forest. The area north of the road is covered with scattered Teak, which on the upper slopes attain a fair size; mixed with these are fair Matti, especially in the south-west of the compartment; at lower elevations Nana and Kindal, which are fairly represented, reach further up the slopes than Matti, Jamba is present but not trees of large size. Of other species Honni, Dhamni and Sissum are not infrequently found, while of the inferior species, with the exception of Karmal, they are not plentiful. Generally speaking the height of growth is poor though the forests on the lower and upper slopes are well stocked. while those of the middle slopes are somewhat open. (*b*) *Natural regeneration.*—The regeneration of Sissum is fair and good on the upper slopes, Kindal and Nana seedlings are also present but in less quantities, while Teak seedlings are found scattered here and there On the whole the regeneration is not so good as it should be. (*c*) *Undergrowth.*—On the lower slopes especially to the south-west, Karvi predominates, while higher up the hill side Chiva is plentiful. Bamboos occur throughout the area, being especially dense just north of the main road. (*d*) *Grazing.*—Grazing is confined to an area on each side of the road and down to the river, being heavy round the fallow cultivation of Dugganbail.	1 Matti— (*a*) Sound ... 12·4 (*b*) Unsound . 2·8 2 Nana ... 2·1 3 Kindal ... 13·5 4 Jamba ... 16·5 5 Teak ... 2·3 6 Sissum ... 1·5 7 Honni ... 1·9 8 Heddi ... ·2 9 Dhamin ... 1·1 10 Apta ... ·3 11 Jambul ... ... 12 Womb ... ·4 13 Karsing ... ·3 14 Bharnigi ... ·1 15 Other species . 44·6		Exploitation should present few difficulties. The warm hill-side is suited to Teak, Sissum and Honni and the lower portions to Matti, all of which species should be encouraged as much as possible when improvement fellings take place.
10	516·4	*North.*—A small nalla dividing compartments 10 and 11. *East.*—The cut line up the Ujrali-K o c a l g a d d a ridge. *South.*—The main road. *West.*—The Ujrali Nalla.	(*a*) *Configuration.*—Aspect north-west, turning to south-west in the southern corner. The compartment is situated on the north-west slopes at the south end of the Ujrali-Kodalgadda ridge, rising from 180 feet at the cultivation to about 1,500 feet in the north-east corner. The first slopes are steep, while the top of the spur is rounded and the gradient more gentle. The whole area drains into the Ujrali Nalla. (*b*) *Rock and Soil.*—The underlying rock is crystalline, forming granites with large crystals, and imperfectly formed schists. The surface of the ground is rugged and covered with many fragments of rock, The soil is fairly deep and very suitable to forest growth.	(*a*) *Growing Stock*—The character of the forest is essentially deciduous and growth of advanced age except for a small evergreen patch in the north-east corner. Fair quantities of Teak are found all over this compartment, in places attaining exploitable dimensions. The forest is very fairly stocked throughout, fine Sissum and Nana reach from top to bottom of the slopes, the larger Matti is confined to the lower slopes and is only found as a small tree on the ridge. Jamba, though well represented, is not so plentiful as in other areas, Dhamni exists in fair quantities but is still of small size, while Womb and Honni are scarce except on the ridge line. Amongst the inferior species Karmal, Kumbia and Sagadi are the most noticeable though the percentage of inferior species nowhere predominates. (*b*) *Natural Regeneration.*—The regeneration of Sissum, Kindal. Nana and Karmal is fair, while seedlings of Dhamni, Teak and Honni on the upper slopes are found scattered here and there. Advanced growth is poorly represented, probably owing to the full stocking of the wood. The place is suitable to regeneration, and the final and improvement fellings should do much to improve the regeneration.	1 Matti— (*a*) Sound ... 7·3 (*b*) Unsound... 1·3 2 Nana ... 4·2 3 Kindal ... 10·3 4 Jamba ... 19·0 5 Teak ... 5·7 6 Sissum ... 5·9 7 Honni ... ·6 8 Heddi ... ·4 9 Dhamni ... 8·4 10 Apta ... ·6 11 Jambul ... ... 12 Womb ... ·5 13 Karsing ... ·5 14 Bharnigi ... ... 15 Other species . 35·3		There may be some difficulty in exploiting the trees as the ground is rugged and steep. Young Teak, Sissum, Matti and Nana should be freed when carrying out the improvement felling, as there is much to do in this respect, particularly as the locality is most suitable to the growth of these species.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
10—*contd.*	516·4	.....	.....	(*c*) *Undergrowth.*—The undergrowth is not heavy, Chiva and small Karvi is found on the upper slopes, and bamboos and patches of Karvi have established themselves, especially round the small nallas. (*d*) *Grazing.*—Grazing is confined to the edge of the cultivation and to the banks of the Ujralli Nalla.			
11	480·8	*North.*—A small Nalla dividing compartments 1 and 11. *East.*—A cut line along the Ujrali-Kodalgadda ridge. *South.*—A small Nalla dividing compartments 10 and 11. *West.*—The Ujrali Nalla.	(*a*) *Configuration.*—Aspect north-west throughout. The compartment is situated on the east slopes of the Ujrali valley, rising from about 200 feet at the nalla to 1,600 feet on the ridge. The gradient is steep at the south end of the compartment and moderate elsewhere. The whole area drains into the Ujrali Nala. (*b*) *Rock and Soil.*—The rock is of basalt, granite and igneous rock. The surface of the soil is rugged and covered with fragments of rock boulders. The soil is fairly deep especially on the lower slopes.	(*a*) *Growing Stock.*—The compartment contains much evergreen and semi-evergreen forest, especially to the south-east. Mixed with this evergreen forest are a few large Matti, Nana and Kindal and Bharnigi. To the north and north-east the forest is of a somewhat more deciduous character, containing Matti of small size, mixed with small Kindal, Jambul and many inferior species. (*b*) *Natural regeneration.*—The regeneration is very fair, especially of Matti and Kindal in the north. Jamba is conspicuous by its absence. (*c*) *Undergrowth.*—On the lower slopes Karvi prevails, while laurels and other evergreen shrubs occur in the non-deciduous portions of the forest. Towards the top of the hill patches of small bamboos and Karvi are found. (*d*) *Grazing.*—Nil.	1 Matti— (*a*) Sound ... 10·0 (*b*) Unsound .. ·5 2 Nana ... ·6 3 Kindal ... 5·9 4 Jamba ... ·4 5 Teak ... ... 6 Sissum ... ·1 7 Honni ... ·1 8 Heddi ... ... 9 Dhamni ... ... 10 Apta ... ·1 11 Jambul ... 4·3 12 Womb ... ... 13 Karsing ... ... 14 Bharnigi ... 2·5 15 Other species... 75·5		A difficult and at the same time poor compartment from an exploitation point of view. Fire in such a compartment would probably do more good than harm to further regeneration.
12	618·0	*North-West.*—A tributary of the Ujar Nalla and a 25 ft. blazed line on the crest of the hill. *East.*—The Ujrali Nalla. *South-West.*—The Hakalguli Nalla and the Bar Nalla.	(*a*) *Configuration.*—Aspect south-east turning to south and south-west in the south. The compartment lies at the junction of the Ujrali and Bar Nallas and stretches up the west side of the former valley. The gradient throughout the area is moderately steep except where it reaches the top of the hills. Here the configuration of the ground forms a precipitous scarp, over which the upland plateau commences. (*b*) *Rock and Soil.*—The underlying rock is granite and schists, intermixed veins of quartz. The top scarp is formed by a cap of laterite. The surface of the soil is covered with fragments of rock and boulders. The soil is deep and rich on the lower slopes, becoming poor on the upper slopes, where sheet rock often appears on the surface.	(*a*) *Growing Stock.*—The slopes contain deciduous forest throughout, while on the plateau are patches of evergreen intermixed with poor deciduous forest and Maidan. To the south Teak occurs, but few trees are of exploitable size. Here also on the lower slopes is found a good forest of Sissum, Matti, Kindal and Nana, amongst which are many large trees, especially of Kindal. To the north along the river the crop is chiefly composed of Kindal, Nana, big Bharnigi and inferior species, while the upper slopes throughout contain very poor forest and offer blanks of considerable size. Bamboos are scattered all over the area, being most frequently found on the lower slopes. (*b*) *Natural regeneration.*—The regeneration is very poor everywhere, even in the more open places. What there is to be found of seedling growth is confined to the plateau where the conditions are not favourable to the production of large timber. (*c*) *Undergrowth.*—The undergrowth on the lower slopes consists of Chiva, where high Karvi does not exist, small patches of Karvi occur on the upper slopes, and evergreen shrubs on the plateau. (*d*) *Grazing.*—Nil.	1 Matti— (*a*) Sound ... 6·9 (*b*) Unsound... ·8 2 Nana ... 3·6 3 Kindal ... 15·1 4 Jamba ... 7·6 5 Teak ... 2·1 6 Sissum ... 4·1 7 Honni ... ·4 8 Heddi ... ·0 9 Dhamni ... 1·8 10 Apta ... ·4 11 Jambul ... ·2 12 Womb ... 1·1 13 Kharsing ... ·3 14 Bharnigi ... 1·1 15 Other species... 54·5		Exploitation will be difficult from the north end of the compartment. On the other hand the number of exploitable trees is small in that locality. The most striking feature of the growing stock is the absence of natural regeneration. On the upper slopes, to bring new growth into existence, will be difficult owing to the poorness of the soil. On the lower slopes heavy improvement felling will have to take place.

APPENDIX III—*continued.*

Compartment No.	Area	Boundaries.	Configuration, rock and soil.	Genecal character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
13	893·6	*North.*—A blazed line starting on the Bár Nalla at a point opposite the táluka boundary corner and rising west. *East.*—The Bár and Ujrali Nallas. *South.*—The Bedti or Gangavali river. *West.*—Hegarmanigadda Nalla and a blazed line.	(*a*) *Configuration.*—All aspects are found in this area, the prevailing one being east. The compartment comprises the summit and slopes of the Kantanmuli hill, rising to 1,530 ft. In the south-east the gradients are gentle, rising more steeply towards the top of the hill, where on the east side they form a scarp some few furlongs short of the summit. In the north and above the scarp a gently sloping plateau exists. (*b*) *Rock and Soil.*—The underlying rock is chiefly basalt and shaley trap, often coming to the surface, intersected with veins of quartz. The soil is poor and shallow for the most part, except on the more level ground on the plateau.	(*a*) *Growing Stock.*—The growth is essentially deciduous and of no great age. The south-east of the compartment contains poor open forest. The whole hillside to the east contains Teak in fair quantities, but few of exploitable size. Mixed with the Teak on the lower and middle slopes are Matti, Nana, Kindal, the latter two species better grown than the former. much Sissum, some Dhamni, Womb and Apta. while the upper slopes are more open containing stunted Teak and a few inferior species. The crest of the hill and platean, though open forest, contain some large Nana. To the north is a good deal of bare rock and in consequence no tree growth, while the west slopes contain little Teak but many Kindal and Jamba and towards the stream the forest becomes evergreen in character. (*b*) *Natural regeneration.*—The seedling growth throughout is good, favouring Sissum, which is present in large quantites mixed with Jamba, Teak in places, Womb, Apta and a few Kindal. (*c*) *Undergrowth.*—The undergrowth is very light for the most part, comprising small bamboos, Karvi in patches and grass towards the top of the hill. (*d*) *Grazing.*—Grazing is confined to the more level ground and is somewhat heavy between the Kasamakki old cultivation and the road.	1 Matti— (*a*) Sound ... 6·7 (*b*) Unsound . 1·8 2 Nana ... 5·0 3 Kindal ... 14·8 4 Jamba .. 19·0 5 Teak ... 5·4 6 Sissum ... 4·6 7 Honni ... ·2 8 Heddi ... ·1 9 Dhamni ... 7·5 10 Apta ·3 11 Jambul ... ·2 12 Womb ... ·7 13 Karsing ... ·6 14 Bharnigi ... ·1 15 Otner species... 33·0		Exploitation should present few difficulties. The growth is generally young and not so dense that the improvement fellings need be heavy. Many seedlings have established themselves and they will require attention.
14	344·4	*North* —A 25 feet blazed line running south and west of the Geral cultivation. *East.*—The Hegar Nalla. *South.*—The Bedti or Gangavali River. *West.*—The Mulemani Nalla.	(*a*) *Configuration.*—Aspect south in the south of the compartment and turning east in the north portion. The compartment slopes gently down to the river in the south and rises with moderate gradients in its upper limits towards the Geral cultivation. (*b*) *Rock and Soil.*—The underlying rock is composed of basalts and shales, intermixed with veins of quartz. The soil is very fair everywhere, being best towards the south. In many places the surface of the soil is covered with boulders and fragments of rock.	(*a*) *Growing Stock.*—The growing stock is of deciduous character, containing many large trees. Between the road and the Nalla the best trees have been exploited, leaving the old faulty trees. Above the road Teak of young age is found sparsely scattered in the lower portions of the area, while in the north a group of Teak exists containing exploitable trees. The compartment as a whole contains many fine straight Matti, Nana and Kindal mixed with Jamba, a few Sissum, Dhamni, Apta, Womb, inferior species and bamboos. In the north-east corner, a small semi-evergreen patch of forest is to be found. (*b*) *Natural regeneration.*—In the lower portion of the compartment the Sissum regeneration is excellent, as good as any elsewhere. With the Sissum are found Kindal, Jamba, Apta and a few Teak seedlings, while at the foot of the hill, above Hegar Khair Seedlings are plentiful. (*c*) *Undergrowth.*—Small bamboos and Karvi are found everywhere. (*d*) *Grazing.*—Grazing is confined to the vicinity of the Hegar cultivation.	1 Matti— (*a*) Sound ... 5·8 (*b*) Unsound . 3·5 2 Nana ... 7·4 3 Kindal ... 16·4 4 Jamba ... 25·5 5 Teak ... 2·9 6 Sissum ... 2·9 7 Honni ... ·1 8 Heddi ... ·1 9 Dhamni ... 4·5 10 Apta ... ·7 11 Jambul ... ·1 12 Womb ... 1·1 13 Karsing ... ·7 14 Bharnigi ... ·2 15 Other species... 28·1		Exploitation easy, this area seems to have escaped exploitation in past years, except the portion south of the road. The natural regeneration is most promising in places.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
15	424·8	*North.*—A blazed line and a branch of Mulemani nalla north of the Mulsmani fallow land. *East.*—The Mulemani nalla. *South-East.*—The Bedti or Gangavalli River. *West.*—The Karalkod nalla and a 25 feet blazed line.	(*a*) *Configuration.*—Aspect south and east. The compartment comprises a narrow strip of land between the Mulemani and Karalkod nallas, the configuration being outlined in the south by a spur which gradually merges into the western slopes of the Mulemani valley. The gradient is moderate, rising from 105 feet on the river to 965 feet in the north of the compartment. (*b*) *Rock and Soil.*—The underlying rock in the north is granite and schist, with some iron stone round the nallas, in the south laterite occurs. The soil is rich, especially in the south, though everywhere favourable to tree growth.	(*a*) *Growing Stock.*—With the exception of a small semi-ever green patch in the north these forests are of a deciduous character. The only teak that occurs is a small patch between the road and the river. Towards the Mulemani cultivation in the south-east, most of the larger trees of the more valuable species have been exploited. Generally speaking the crop contains very fair Matti, Nana and Jamba of large size, the Matti being confined chiefly to the lower slopes. mixed with the above are a large percentage of Jamba, a few Honni, Dhamni, Apta, small Kharsing and inferior species. The compartment is well stocked except on the east edge where the quality and stock falls off. (*b*) *Natural regeneration.*—Jamba seedlings are plentiful everywhere, mixed with a few Matti on the lower slopes and Nana and Kindal on the upper slopes. The crop is generally too dense for the production of seedlings of light demanding species. (*c*) *Undergrowth.*—Bamboos and heavy Karvi in the south and Karvi and evergreen shrubs in the north of the compartment. (*d*) *Grazing.*—The grazing is moderate in the south and east of the compartment and *nil* elsewhere.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal .. 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species .	 8·3 2·3 8·8 18·3 30·5 ... 1·1 ·1 ·2 ·6 ·4 ·4 ·8 1·1 ... 27·1	Exploitation should present no difficulties. The natural regeneration will require aid by heavy improvement fellings.
16	524·4	*North.*—A 25 feet blazed line. *East.*—The Karalkod nalla and the Bedti river. *South.*—The Main road and the Sunksal nalla. *West.*—The Sunksal cultivation and a 25 feet cut line.	(*a*) *Configuration.*—Aspect south and south-east. The compartment is situated on the south-east slopes of the Solmani-Sunksal spur being drained by two petty nallas running into the main stream. The gradients in the south are gentle becoming steeper towards the north where the compartment attains a height of 1,200 feet. (*b*) *Rock and Soil.*—The underlying rock in the lower portion of the compartment is laterite, higher up soft granites and schists occur. The soil is deep and rich especially in the low lying areas.	(*a*) *Growing Stock.*—In the north-east of the compartment is a patch of old "Kumri" land now covered with Jamba poles mixed with scattered Kindal and Nana. In the south-west corner is a former cultivation, now covered with Matti, Kindal and Nana poles in patches and of poor quality. The rest of the compartment contains good forest of Matti, Kindal, some Nana, many small Jamba; the large Matti being confined to the lower slopes. Mixed with the above species are small Jambul, Heddi, Dhamni and inferior species. (*b*) *Natural regeneration.*—Matti and Kindal seedlings are plentiful around the edge of the cultivation, and in the more open places in low lying areas, while higher up owing to the dense growth of Karvi regeneration is practically nil. (*c*) *Undergrowth.*—Patches of Karvi and Bamboos occur at lower elevations, while higher up the undergrowth is dense Karvi with scattered Bamboo clumps. (*d*) *Grazing.*—Grazing is common in the south being practically nil on the slopes. In places it is excessive, *i.e.*, near the road.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species .	 7·0 3·3 2·4 25·1 29·0 ·1 ·8 ... ·2 ·4 ·3 1·0 ·7 ·1 ... 29·6	No difficulty should be found in exploiting the compartment. The natural regeneration is on the whole unsatisfactory in this area, owing to the excessive growth of Karvi. In a year of general flowering, the Karvi might with advantage be burnt.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
17	429·2	*North.*—A blazed line 25 feet broad. *East.*—A cut line, Alkona cultivation and a small bit of cut line from the fields to the road. *South.*—The Kárwár-Yelláp ur, road and Sunksal nalla. *West.*—A 25 feet cut line.	(*a*) *Configuration.*—Aspect south and south-east in the south of the compartment. The area is situated on the east slopes of a spur which forms the east end of the Sunksal-Katinhakal valley. The gradients for the most part are steep, rising from 120 feet on the road to 1,227 feet in the north-west corner. The slopes are drained by innumerable small nallas falling into the Sunksal Nalla. (*b*) *Rock and Soil.*—The underlying rock is a grey granite turning in places to schists. The soil is fair and good-especially in the south-east.	(*a*) *Growing Stock.*—The whole area contains good deciduous forest from 60 to 90 feet in height, the height growth being less on the upper slopes than in the south-east of the compartment. Many fine Matti occur at the lower elevations, mixed with large Kindal, Nana and Sissum, the latter species being found more frequently on the upper slopes. Jamba is very plentiful towards the ridge, while young Kharsing, Honni, Heddi, Womb, Dhamni and Apta are found scattered in the north centre of the compartment. Of the inferior species a fair number of large Goting, Karmal, Kumbia, Satwan are present, the whole intermixed with many Bamboos. Close to the river semi-evergreen forest occurs. (*b*) *Natural regeneration.*—Seedlings of Womb and Sissum are noticeable on the middle slopes, Jamba regeneration is plentiful on the upper slopes, while on the more level ground Matti, Kindal and Dhamni seedlings are scattered in the more open places and round the cultivation. (*c*) *Undergrowth.*—Thick Karvi, especially on the slopes and crest of the hill mixed everywhere with Bamboos. (*d*) *Grazing.*—Grazing is heavy on the lower ground and round the hillock in the south centre of the compartment.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species .	9·0 4·2 4·2 20·4 16·5 ... 1·5 ·1 ·5 1·6 ·4 ·5 1·2 ·4 ... 39·5	Exploitation should present no great difficulties, perhaps in the north of the compartment owing to the steepness of the ground, it may be somewhat expensive. The compartment contains much mature wood, with a good deal of faulty Matti. The regeneration except of Jamba is not so good as it should be, owing to the heavy growth of Karvi.
18	719·6	*North.*—A foot-path going up the hill from Kotepal which is blazed 25 feet broad. *East.*—A blazed line starting from the 1,227 feet contour in the east and rising north-west along the side of the hill and a cut line dividing compartment 17. *South.*—A 25 feet cut line. *West.*—The Sunksal nalla.	(*a*) *Configuration.*—Aspect west and slightly south. The compartment is situated on the lower eastern slopes of the Sunksal-Katinhakal valley, rising from the river at about 300 feet to about 1,200 feet on the upper boundary. The gradients are moderate in the north and steep in the centre and south of the area. The whole compartment is drained by many small nallas running into the Sunksal nalla. (*b*) *Rock and Soil.*—The underlying rock is chiefly laterite with outcrops of granite and shales on the upper edge. The soil is good, especially on the lower slopes.	(*a*) *Growing Stock.*—The compartment contains deciduous forest to the south and on the lower northern slopes. The upper edge of the area and the extreme north are semi-evergreen or true evergreen forests, being probably the result of former "Kumri" cultivation. The crop is characterised by the presence of many Jamba, large mature Matti on the lower elevations, while large Kindal, Nana are found everywhere. The height growth is well maintained everywhere except in the north-east corner where it falls off. Honni, Womb, Kharsing and Bharnigi are sparsely scattered all over the area, the latter species being found near or in the evergreen belt. Many large trees of inferior species are common in this compartment. (*b*) *Natural regeneration*—With the exception of Jamba the natural regeneration is poor. (*c*) *Undergrowth.*—Karvi appears everywhere except in the evergreen portions, while large bamboo clumps cover the slopes of the deciduous portion of the compartment. (*d*) *Grazing.*—Grazing is practically nil, except just round the Biroli cultivation.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species .	4·5 ·2 6·5 23·8 31·7 ... 1·2 ·1 ... ·7 ·2 1·6 1·1 ·5 ·1 27·8	Exploitation should present no difficulties especially as most of the large timber is found on the lower slopes. Fire might possibly check the encroaching evergreen, heavy improvement fellings would probably encourage it.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
19	737·2	*North.*—The old main road. *East.*—The Ganga nalla from its crossing with the main road, just west of the 44th mile stone down to its junction of Bedti river. *South.*—The Bedti or Gangavali river from the junction of the Ganga nalla to the junction of Kandarmani nalla.	(*a*) *Configuration.*—Aspect on the Hoskopgudda hill is east and west. The compartment includes the above hill and the narrow strip of jungle between the road and the Bedti river. The ground is hilly between the two roads and is somewhat level, lowlying and damp below the new road. A small hilly portion with southern aspect lies close along the Bedti river. (*b*) *Rock and Soil.*—The soil on the lower ground is mostly alluvial deposit, and is very deep and rich. The hilly portion is laterite of inferior quality.	(*a*) *Growing Stock.*—This is a very good Teak producing area, but it has been much overworked owing to the facilities of export. There are a few Teak poles left but no trees above 16″ diameter, the majority being in the pole stages. The height growth is good and Teak if allowed to grow will reach a great size. There are many large Kindal, Matti, Jamba, Nana and jungle wood in the area of from 90 to 100 feet high. The density is poor owing to overcutting about 55 to 60 per cent. of the growing stock. (*b*) *Natural regeneration.*—The generation is generally fair, that of Blackwood, Teak and Jamba is promising. (*c*) *Undergrowth.*—There are many large Dowgi Bamboos which form the undergrowth over the whole area. A few open grassy patches occur here and there, and Karvi appears in patches on Hoskopgudda hill. (*d*) *Grazing.*—Cattle do a good deal of damage by trampling down the seedlings which have grown up in the open grassy patches.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 8·2 2·1 5·9 31·4 17·5 1·8 3·4 ... ... 29·7	No Teak should be cut in this compartment for some years. Natural regeneration of Teak should be attended to and the compartment should be strictly closed both to the cutting of timber of any kind and to grazing. There is no difficulty about export.
20	729·2	*North.*—The Sunksal nalla. *East.*—The Gangavali river. *South.*—A 25 feet cut line and part of a small nalla running into the Bedti river. *West.*—The Karwar-Yellápur road.	(*a*) *Configuration.*—The compartment lies between the main road and the river on undulating hillocky ground. It is drained by two small nallas running into the Gangavalli. The altitude of the compartment varies between 80 feet and 150 feet above M. S. L. (*b*) *Rock and Soil.*—The underlying rock is laterite with fragments of quartz and crystalline rock lying on the surface, having probably been brought there from the higher ground by the action of water. The soil is deep and fertile.	(*a*) *Growing Stock.*—With the exception of old cultivated patches, here and there, the crop constitutes old 90 to 100 feet high forest, in places somewhat open, out of which most of the sound large Matti has been cut leaving many large unsound trees. Of Nana and Jamba some fair trees still remain, while Kindal, which has practically been untouched, shows a high percentage of mature trees. The younger classes are poorly represented, except on the old cultivated areas mentioned above, where fair pole woods of Kindal, Matti, Sissum, Heddi have established themselves mixed with the above species are many Goting, Karmal Kumbia, Mohi, Saver, Bharnigi, Kajra, etc., some of which have grown into enormous trees. (*b*) *Natural regeneration.*—In the somewhat open places seedlings of Jamba abound, in more open places Kindal with a few Apta, Womb and Nana have established themselves. Were it not for the dense Karvi in this compartment, there can be no doubt the regeneration would be excellent. (*c*) *Undergrowth.*—Dense Karvi nearly everywhere, with scattered small Bamboos. (*d*) *Grazing.*—The grazing is very limited, except of Bison, who do more good than harm by clipping off the Karvi.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba .. 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Karsing ... 14 Bharnigi ... 15 Other species .	 4·4 5·4 6·9 20 6 16·6 ... ·7 ... ·1 2·2 ·6 ·2 2·0 ·4 ·8 39·1	Exploitation is very easy, hence the former wholesale fellings of Matti and other species. Karvi is the difficulty here, with care it should be burnt directly after flowering. Seedlings will suffer relatively little by burning as they have only appeared in the patches where Karvi is absent.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
21	759·0	*North.*—A 25 feet cut line and part of a small nalla, dividing it from compartment 20. *East.*—The Gangavali River. *South.*—A nalla. *West.*—The Kárwár-Yellápur road.	(*a*) *Configuration.*—Very similar to compartment 20, but slightly more undulating. (*b*) *Rock.*—Similar to compartment 20.	Similar to compartment 20 ...	1 Matti— (*a*) Sound ... (*b*) Unsound .. 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 9·6 1·5 4·9 19·8 17·6 ... ·9 ·3 ·2 2·0 ·7 ·1 2·2 ·3 ... 39·5	The notes on compartment 20 apply with equal force to this compartment.
22	633·2	*North.*—A nalla. *East.*—The Gangavali River. *South.*—A 25 feet cut line and a nalla. *West.*—The Kárwár-Yellápur road.	(*a*) *Configuration.*—Aspect generally north-east turning to east in the east of the compartment. The ground rises in the north and east from a small nalla and the Gangavali River, respectively at an elevation of about 65 feet to a small ridge of hills 500 feet high in the south-west. The area is much intersected with small nallas which run generally eastwards into main stream. (*b*) *Rock and Soil.*—The underlying rock is laterite with out crops of crystalline rock on the small hills. The surface of the ground is covered with fragments of rock. The soil is deep and fertile.	(*a*) *Growing Stock.*—The area is covered with mature forest of a truely deciduous character. The Matti, Jamba and even Naua have been heavily exploited in the past, leaving many large unsound trees. Kindal on the other hand has not been exploited, so that the whole area is covered with many large trees of this species. Teak is found in very small quantities as a young tree in the west, and round the old cultivations, of which several patches exist. In the southern half of the compartment, the younger classes of Matti, Jamba Kindal and to a less extent of Nana are well represented. Mixed with the above species are some Dhamni, Apta, Womb, Honni and Kharsing, the former three species being most common, while of inferior species many large trees occur everywhere. (*b*) *Natural Regeneration.*—The seedling growth is confined to the edges of the cultivation and more open places. The dense growth of Karvi and Bamboos has, however, completely stopped natural regeneration in most places. (*c*) *Undergrowth.*—Heavy Karvi intermixed with patches of dense Bamboo clumps. (*d*) *Grazing.*—Grazing goes on all over the north and east portion of the compartment and also round the old cultivations.	1 Matti – (*a*) Sound ... (*b*) Unsound .. 2 Nana ... 3 Kindal .. 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species...	 13 8 1·0 3·8 16·8 23·1 ·1 1·1 ·2 ·2 3·4 ·9 ·2 ·9 ·5 ... 34·0	The notes given in compartment 20 apply to this compartment also.
23	736·4	*North.*—A 25 feet cut line and a small nalla. *East.*—The Gangavali River. *South.*—A 25 feet cut line. *West.*—The Kárwár-Yellápur and Hebul-Pattanpar roads.	(*a*) *Configuration.*—To the west more or less level ground with a south and west aspect, the area draining into the Hebul Nalla. The central and eastern portions of the compartment form a small valley, with hills rising to about 500 feet on each side and draining into the Gangavali River direct. The gradients throughout the area are moderate.	(*a*) *Growing Stock.*—With the exception of a small patch of evergreen on the south-east boundary and another on the west, the whole of the area of the compartment is of a deciduous character, being of better quality in the east than in the west. Some of the large Matti and Jamba have been exploited, though in places mature trees are still to be found. Good Kindal is plentiful and to a lesser extent Nana. Sissum, Dhamni, Jambul, Apta, Kharsing, Womb, Bharnigi are re-	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni .. 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ...	 6·2 2·6 5·7 14·3 17·0 ... ·8 ... ·1 2·5 ·8 ·6 ·3 ·4	Exploitation should present no difficulties. The heavy Karvi growth will have to be dealt with by burning. The fallow areas could be dibbled over with advantage.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
			(*b*) *Rock and Soil.*—The underlying rock is laterite. The soil in the west is poor, improving in the catchment area.	presented in fair quantities, but not as large trees, while a large percentage of the crop is made up of inferior species. The area is much intersected by patches of cultivation and on the top of the hill to the north-east there exists a patch of forest that appears to have been cut over 10 or 15 years ago. (*b*) *Natural Regeneration.*—In the more open places on the lower ground and round the cultivation seedling growth of Jambul, Kindal and Matti is very fair, while on the upper slopes and tops of the hills it is practically nil. (*c*) *Undergrowth.*—Patches of Bamboos and Karvi appear scattered on the lower ground, while the hill sides contain a dense growth of high Karvi. (*d*) *Grazing.*—In the west, on the flat ground and round the fallow land in the centre of the compartment, grazing is heavy, but little elsewhere.	14 Bharnigi ... ·6 15 Other species... 48·1		
24	730·4	*North.*—A 25 feet cut line dividing compartments 23 and 24. *East and South.*—The Gangavali River. *West.*—The Hebul-Pattanpar road.	(*a*) *Configuration.*—Aspect south. The ground, which is intersected by small nallas, slopes gently down southwards to the Gangavali, only in the extreme east there is a small hill, the highest point of which does not exceed 250 feet about M. S. L. (*b*) *Rock and Soil.*—The underlying rock is laterite on the lower ground with out crops of crystalline rock containing a high admixture of quartz on the hillock. The soil is everywhere deep and fertile.	(*a*) *Growing Stock.*—A fairly large patch of evergreen forest occurs in the east but not reaching down to the river, otherwise the area contains deciduous forest averaging 90 feet in height. Matti is fairly represented everywhere, though not in so great quantities as Kindal and Nana, that is, as far as exploitable trees are concerned. Jamba is not found here in so great quantities as is the case in the more hilly compartments. Heddi, Jambul and Dhamni are fairly represented, even in the higher classes, while Sissum as a large tree is conspicuous by its absence. The inferior species are largely represented by big tall trees of Goting. Karmal, Kajra and on the river banks by Hole-Kawli and Arjun. (*b*) *Natural Regeneration.*—Short of the evergreen belt and again in the extreme east, the natural regeneration of the better species is fair, while in the west, where the Karvi growth is heavy, it is poor. (*c*) *Undergrowth.*—Thick Karvi is found all along the north boundary, Bamboos occur on the lower ground, becoming dense towards the main stream and round the nallas, while overgreen bushes are found in the evergreen belt. (*d*) *Grazing.*—Grazing is carried on near the main road and round the Ranjanguli cultivation.	1 Matti— (*a*) Sound ... 16·5 (*b*) Unsound .. 0·1 2 Nana ... 4·5 3 Kindal ... 13·4 4 Jamba ... 11·4 5 Teak ... ... 6 Sissum ... 1·2 7 Honni ... ... 8 Heddi ... 1·3 9 Dhamni ... 1·4 10 Apta ... ·3 11 Jambul ... ·6 12 Womb ... ·3 13 Kharsing ... ·3 14 Bharnigi ... ·3 15 Other species... 48·4	The Local Fund Road will make extraction easy. The presence of the evergreen belt in the compartment is difficult to explain and does not increase the value of the area. Matti growth should be encouraged as the soil and locality are most favourable for its development.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
25	585·6	*North.*—The Varanjola Nalla. *East.*—The Kárwár-Yelláp u r road. *South.*—The Sunksal Dharmashala Nalla and cultivation. *West.*—A 25 feet blazed line, joining the north and south nallas.	(*a*) *Configu r a t i o n.*—Aspect turning from north-east to south-east. The compartment lies between two nallas, divided by a spur, which forms the western half of the area. The gradients on the spur are moderately steep, while in the east the ground is of an undulating nature with gentle slopes. The highest point in the compartment lies on the western boundary and is 1,300 feet above M. S. L. (*b*) *Rock and Soil.*—The underlying rock is granite and schists, with laterite coming to the surface locally. The soil on the lower ground is deep and rich, becoming poorer on the higher elevations.	(*a*) *Growing Stock.*—Round the old cultivated fields of Sunksal, in the east of the compartment, the forests are poor, having been formerly very badly treated, and any good Matti there might have been has been exploited. On the hill sides deciduous forest is found, containing fair Matti, Kindal, Jamba and a few Nana Heddi, Jambul, etc. On the upper slopes Jamba is found in great quantities, while the crop towards the top of the hill turns to pure evergreen forest. (*b*) *Natural Regeneration.*—On the lower ground in the belts of forest between the cultivation, plentiful regeneration is struggling against over grazing, while the fallow lands have not a chance of producing seedlings. Locally, in spots less grazed over the forest is gradually filling up these areas. On the spur regeneration is extremely poor owing to the heavy growth of Karvi. (*c*) *Undergrowth.*—On the lower ground Karvi is found only in patches, while on the hill side it appears as a dense crop. Bamboos are scattered sparsely all over the area. (*d*) *Grazing.*—The grazing is very heavy all over the east of the compartment.	1 Matti— (*a*) Sound ... 12·4 (*b*) Unsound . 4·9 2 Nana ... 3·4 3 Kindal ... 12·4 4 Jamba 20·0 5 Teak ... ... 6 Sissum ... 1·6 7 Honni ... ... 8 Heddi ... ·2 9 Dhamni ... ·8 10 Apta ... ·3 11 Jambul ... ·8 12 Womb ... ·3 13 Kharsing ... ·2 14 Bharnigi ... ... 15 Other species... 42·7		Exploitation presents no difficulties. The grazing will have to be stopped for a cycle of years after fellings have gone over this area so as to allow the younger classes to become better represented. The Karvi growth should be reduced by burning at the proper time, *i.e.*, directly after flowering.
26	798·0	*North.*—The Sunksal Dharmashala Nalla and cultivation. *East and South.*—The Kárwár-Yelláp ur road. *West.*—The Hebul Nalla and a blazed line in the north-west corner.	(*a*) *Configurati o n.*—All aspects occur in this area. The centre of the compartment is formed by a 593 feet hill, with moderate gradients. Another hill occurs in the south-west rising to 784 feet and a little hill of 388 feet lies in the angle formed by the bend of the main road. The gradients of the largest hill are in places somewhat steep. The area is drained by innumerable small nallas running in all directions. (*b*) *Rock and Soil.*—The underlying rock is laterite in the north-east and schists of varying quality and basalt elsewhere, intercepted with veins of quartz. The soil is fair to good and generally suitable to tree growth.	(*a*) *Growing Stock.*—The compartment comprises a very varying growing stock. On the both sides of the 784 feet hill, above Hebul, true deciduous forests are found containing a good percentage of sound Teak, some of exploitable size. This Teak area stretches as far as the 583 feet hill. On the north and north-west boundary patches of evergreen forest occur. Along the north nalla fine Matti are to be found, while Kindal, Jamba, Womb, Dhamni and Nana form true high forest of good quality nearly all over the area. In the north-east corner near Sunksal there is an area of poor forest, formed of Bamboos, Zizyphus, and old faulty Matti trees. (*b*) *Natural Regeneration.*—Regeneration is very fair in the deciduous portions of the forest especially of Matti, in the lower areas and Kindal, Jamba, Womb and Teak on the slopes. (*c*) *Undergrowth.*—Dense Karvi occurs on the upper slopes and tops of the hills, the growth being lighter lower down the slopes. Bamboos are scattered all over the area. (*d*) *Grazing.*—Grazing is chiefly confined to the north-east of the compartment, being practically nil elsewhere.	1 Matti— (*a*) Sound ... 4·6 (*b*) Unsound . 1·4 2 Nana ... 4·6 3 Kindal ... 17 5 4 Jamba .. 24·4 5 Teak ... 1·7 6 Sissum ... 1·1 7 Honni ... ·1 8 Heddi ... ·1 9 Dhamni .. 1·1 10 Apta ... ·2 11 Jambul ... ·5 12 Womb ... 1 2 13 Kharsing ... ·1 14 Bharingi ... ·2 15 Othes species . 41·2		Exploitation may be somewhat expensive owing to the hilly nature of the ground. Much could be done by improvement fellings with a view of increasing the area under Teak.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
27	467·2	*North.*—A 25 feet blazed line running over the summit of the 858 feet hill. *East.*—The Hebul Nalla and the Kárwár-Yellâpur road. *South.*—The Kárwár-Yellápur road. *West.*—The Armatti Nalla.	(*a*) *Configuration.*—Aspect east turning round the spur to due west. The compartment lies on the spur which joins up the southern end of the Varanjola ridge and which runs down the centre of the compartment. The south end of the spur, touching the main road, is about 100 feet above M. S. level and rises by moderate to steep gradients to 858 feet on the northern limit of the compartment. The area is drained by many small nallas, on the east into the Hebul Nalla, and on the west into the Armatti nalla. (*b*) *Rock and Soil.*—The underlying rock is of a crystalline character containing gneisses formed under varying amounts of pressure and heat, in some cases approaching shale. Quartz veins occur throughout the rock, while the surface of the ground is covered with fragments of stone. The soil is deep and suitable to the growth of deciduous species.	(*a*) *Growing Stock.*—In the south of the compartment the forest is of a rather open deciduous character and of somewhat poor quality. North of Hebul and again in two places on the west boundary Teak up to exploitable size occurs. Between the two Teak producing areas on the west boundary occurs an old "Kumri" area, containing a fine crop of young Matti. The slopes of the spur in the centre of the compartment contain good deciduous forest of Matti, Nana, Sissum, Jamba, Kindal, mixed with small quantities of Dhamni, Jambul, Womb, small Kharsing and an average percentage of inferior species. The north of the compartment contains nearly pure Jamba of even age, turning in places to evergreen forest. (*b*) *Natural Regeneration.*—Teak seedlings occur in small quantities in the Teak producing areas. In more open low lying situations Matti seedlings abound, while on the slopes Kindal, Karmal and Womb are the commonest species in the seedling stages. (*c*) *Undergrowth.*—In the south little or no undergrowth, elsewhere Karvi occurs excepting in the north, under the Jamba. Bamboos are scattered everywhere, specially on the lower slopes (*d*) *Grazing.*—Grazing is confined to the sides of the nallas and to round the Hebul cultivation.	1 Matti— (*a*) Sound ... 9·4 (*b*) Unsound ... 2·8 2 Nana ... 3·4 3 Kindal ... 14·6 4 Jamba ... 14·8 5 Teak ... 2·2 6 Sissum ... 3·9 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... 3·2 10 Apta ... ·4 11 Jambul ... ·3 12 Womb ... ·6 13 Kharsing ... ·8 14 Bharnigi ... ... 15 Other species . 43·6		Exploitation should present few difficulties. Teak wants attention as does the Kumri patch on the west, where improvement fellings will do much good.
28	577·2	*North.*—The Kárwár-Yellápur road. *East.*—The Hebul-Pattanpur Local Fund road. *South.*—The Gangavali River. *West.*—The Badigone or Chattargadda west Nalla.	(*a*) *Configuration.*—Low-lying undulating ground in no case rising above 150 feet above M. S. L. without any definite aspect. The compartment lies between the main road and the banks of the river, being of a sufficiently undulating character to be well drained. (*b*) *Rock and Soil.*—The underlying rock is chiefly laterite, while the raised hillocks are composed of a fine grained schistose rock. The soil is deep, especially in the depressions.	(*a*) *Growing Stock.*—In the east fair deciduous forest occurs containing mature Nana and Kindal, while Matti in the younger classes is well represented and in older classes by large unsound trees only. Mixed with the above are a few large Heddi and many large Jamba, Karmal, Kumbia, Kosum and other species. In the centre of the compartment are many old "Kumri" areas and old cultivated patches now covered with promising young growth of Matti, Nana, Jamba, Dhamni and Womb. To the west the forest is rather open and contains scattered large trees of the abovementioned species, under which many young Jamba have appeared. (*b*) *Natural Regeneration.*—The seedling stages are, with the exception of Jamba, but poorly represented. (*c*) *Undergrowth.*—Karvi is plentiful everywhere, except in the old cultivated areas in the centre of the compartment. Bamboos are scattered all over the area, especially along the river. (*d*) *Grazing.*—Grazing is carried on all over the area, but not heavily except perhaps in the vicinity of the roads.	1 Matti— (*a*) Sound ... 3·4 (*b*) Unsound... 1·6 2 Nana ... 9·1 3 Kindal ... 13·1 4 Jamba ... 13·6 5 Teak ... ... 6 Sissum ... 1·4 7 Honni ... ·1 8 Heddi .. ·8 9 Dhamni ... 11·5 10 Apta ... ·6 11 Jambul ... ·1 12 Womb ... 2·3 13 Kharsing ... 1·2 14 Bharnigi ... ·3 15 Other species . 48·9		A very easy locality to exploit. Attempts should be made to burn the Karvi as it finishes flowering and before the seed ripens.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
29	566·4	*North.*—Kárwár-Yellápur road. *East and West.*—The Chuttargadda Nalla. *South.*—The Gangavali River. *West.*—A small nalla and a cut line.	(*a*) *Configuration.*—Similar to compartment 28 of which it is a continuation. (*b*) *Rock and Soil.*—Similar to compartment 28.	(*a*) *Growing Stock.*—To the south-east along the river the forest is decidedly poor in places, composed of many small Bamboos and inferior species. To the north-east of the Yekiguli cultivation is a patch of high evergreen forest, which on going towards the east centre turns to Jamba and then into fair deciduous forest of Nana, Kindal, Jamba, many of which attain a large size. Matti is below the average in quantity in this compartment. Sissum, Womb and a good deal of Dhamni are found scattered over the area, but not of large size. Two small patches of Teak occur, one in the centre and the other on the west boundary of the compartment. (*b*) *Natural Regeneration.*—Teak seedlings are fairly plentiful in the Teak patches, while Jamba seedlings are common in the centre of the compartment, otherwise the seedling growth is not noticeable. (*c*) *Undergrowth.*—Karvi is found in the east and west, but not noticeable elsewhere. Bamboos occur especially in the south-east and all along the river. (*d*) *Grazing.*—Grazing is fairly heavy in the south-east and round the Yekiguli cultivation.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing .. 14 Bharnigi ... 15 Other species .	 1·4 1·2 14·4 9·1 16·4 ·3 1·2 ... ·7 7·7 ·4 ·1 ·8 ·5 ·3 45·5	Note similar to compartment 28.
30	614·8	*North.*—The Kárwár - Yellápur road. *East.*—A small nalla and a cut line. *South.*—The Gangavali River. *West.*—The Haudimadi Nalla.	(*a*) *Configuration.*—The compartment lies in the angle formed by the junction of the Gangavali and Handimadi Rivers. The area has no definite aspect being situated on a ridge of low hills, the highest of which is 178 feet above M. S. L. or about 100 feet above the river. Towards the east the ground is practically flat. (*b*) *Rock and Soil.*—The underlying rock is laterite and on the higher ground much milky quartz occurs. The soil is deep and fertile.	(*a*) *Growing Stock,*—The growing stock is entirely of a deciduous character. Generally speaking the crop forms promising young woods of Nana, Kindal and Jamba; Matti is not so well represented while Sissum, Dhamni, Apta, Heddi, etc., are scattered over the area in small quantities, mixed with some large trees of inferior species. Teak occurs all along the south slopes above the Gangavali which together with the Nana poles in other places gives the crop a very promising future. A few straight Teak of more advanced age are to be found in the west along the Handimadi River and a patch of fallow cultivation occurs along the main road and another down the centre of the area, innocent of tree growth. (*b*) *Natural Regeneration.*—In the Teak producing area many half suppressed and suppressed seedlings are to be found. Nana, Kindal and Jamba seedlings occur all over the area. (*c*) *Undergrowth.*—The undergrowth is nowhere heavy, patches of Karvi occur here and there especially in the north and east, while small Bamboos are found in the south-east of the compartment. (*d*) *Grazing.*—Grazing is confined to the fallow lands, along the banks of the Handimadi River and to along the edge of the road.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum .. 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 8·8 1·5 16·4 16·8 10·3 1·9 3·4 ... ·3 6·3 ·7 ·1 ·3 ·8 ·1 32·3	There is very little to exploit from this compartment at present. Much can be done in freeing the suppressed Teak, especially with a view of increasing the Teak producing area.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
31	392·0	*North and West.*—The Handimadi Nalla. *East.*—The Kendga-Yekiguli foot-path. *South.*—The Kárwár-Yellápur road.	(*a*) *Configuration.*—The compartment is wedge shaped, lying between the Handimadi Nalla and the main road, the apex of the wedge being at the Handimadi Bridge and the base against the Chattragadda Hill. The ground is flat in the west and slightly undulating in the east. The whole area drains into the Handimadi River and therefore slightly slopes from south to north-west. (*b*) *Rock and Soil.*—The underlying rock is laterite and "murum". The soil is good except in the centre of the compartment where it is only of middling quality.	(*a*) *Growing Stock.*—The growth is all deciduous, except for a small evergreen patch of forest in the north-west of the area. The growing stock is, generally speaking, not yet mature, though some few large trees of Matti, Kindal and Nana are scattered here and there, the best trees having already been exploited. The quality of the growth is, however, good, except in the centre of the compartment. The percentage of Matti, Kindal and Nana is not high, especially in the lower classes, where it is in defect. Heddi and Jambul are common on the river banks. Inferior species are largely represented, especially in the younger classes. A few scattered Teak exist on the east boundary. Old patches of cultivation are to be found here and there in this compartment. (*b*) *Natural Regeneration.*—The seedling crop is fair to good, Matti seedlings being found in the more open places, Nana and Kindal in small openings and Jamba nearly everywhere. (*c*) *Undergrowth.*—The growth of Karvi is nowhere heavy being confined to the northern half of the compartment. Small Bamboos occur in the east where Teak is found, elsewhere the undergrowth is confined to a few shrubs such as Flemingia and Helisteres Isora. (*d*) *Grazing.*—Grazing is carried on to a small extent all over the area, and especially in the vicinity of the road in the west.	1 Matti— (*a*) Sound ... 5·6 (*b*) Unsound ... 2·0 2 Nana ... 7·7 3 Kindal ... 12·1 4 Jamba ... 16·1 5 Teak ... ·3 6 Sissum ... 2·0 7 Honndi ... ... 8 Heddi ... ·5 9 Dhamni ... 3·7 10 Apta ... ·6 11 Jambul ... ·4 12 Womb ... 1·3 13 Kharsing ... ·1 14 Bharnigi ... ·1 15 Other species . 47·2		The compartment contains few exploitable trees, it chiefly requires time to recoupe itself after excessive fellings of large trees and trees given on permit, etc.
32	765·6	*North.*—The Kendga Nalla and a cut line. *East.*—A nalla crossing the main road at mileage 30/3 and a cut line 25 feet broad. *South.*—The Kárwár-Yellápur road. *West.*—The Keri Kendga foot-path (cut and blazed) and the Kendga Nalla.	(*a*) *Configuration.*—Aspect generally north-east except round Chattargadda Hill where all aspects occur. In the south-west of the compartment is situated the Chattargadda Hill rising to 503 feet, the lowest point in the compartment being 140 feet above M. S. L. With the exception of the hill the rest of the compartment is undulating, ground draining in the west into the Kendga Nalla and in the east into a small nalla which rises straight into the Gangavali River. (*b*) *Rock and Soil.*—On the lower ground laterite is found, while the hill is composed of granite and gneiss and veins of milky quartz. The soil is fair to good on the undulating	(*a*) *Growing Stock.*—The south and centre of the compartment contain deciduous forest, while to the north and north-west the growth is semi-evergreen, approaching true evergreen. The height growth throughout the compartment is not over 80 feet and therefore below that of the best quality areas. On the slopes of the Chattargadda Hill is a fair amount of Teak containing a few large trees, with this species are mixed Sissum, Kindal, Nana, inferior species and Bamboos. The compartment contains a fair quantity of large Nana, though not of great height, Kindal is fairly represented, and Jamba is very plentiful in the north and north-west of the area, where it is found near as pure forest. The inferior species are largely represented, the most common being Karmal and Knmbia. (*b*) *Natural Regeneration.*—The seedlings are found on the hill sides, in rather larger quantities than in other similar areas.	1 Matti— (*a*) Sound ... 1·3 (*b*) Unsound . ·5 2 Nana ... 6·1 3 Kindal ... 7·8 4 Jamba ... 24·9 5 Teak ... 1·7 6 Sissum ... 1·6 7 Honni ... ... 8 Heddi ... ·1 9 Dhamni ... 2·7 10 Apta ... ·2 11 Jambul ... ·2 12 Womb .. 1·0 13 Kharsing ... ·1 14 Bharnigi ... ·2 15 Other species . 51·6		Exploitation should be easy. Much can be done by freeing the advanced teak seedlings on the hill. Creepers are doing much harm to the growing stock and should be cut out at an early date.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3.	4	5	6	7	8
			ground, being rather shallow and of poor quality on the hill side.	Matti regeneration is good locally while Nana and Jamba are well represented in the younger stages of growth, especially the latter species. (c) *Undergrowth.*—Karvi growth is not excessive anywhere, small Bamboos are found especially on the hill side and evergreen shrubs, such as laurels, are plentiful in the evergeen area in the north. Creeper growth is heavy everywhere. (d) *Grazing.*—Grazing is not heavy anywhere, being confined to the north boundary and close to the road in the south of the compartment.			
33	750·8	*North.*—A blazed line crossing the south spur of the 1,009 feet hill. *East.*—The Armatti Nalla. *South.*—The Kárwár-Yellápur road. *West.*—A nalla crossing the road at mileage 30/3 and a cut line 25 feet broad.	(a) *Configuration.*—Aspect west turning round the spur to east. The compartment comprises a ridge of hills rising down the centre of the area and rising in the south from 120 feet, on the main road, to 1,000 feet on the north boundary. The gradients are moderate to steep, especially on the eastern slopes, the area draining east into the Armatti Nalla and west into a small nalla which runs direct into the Gangavali River. (b) *Rock and Soil.*—Laterite is found on the top of the hill, which is not a common feature in these parts. Elsewhere gneiss and granite is found, with a large admixture of quartz. The soil is fair to good in quality, even on the tops of the hills.	(a) *Growing Stock.*—With the exception of a large patch of evergreen and an old kumried area containing nearly pure Jamba on the north-west slopes and another kumried area on the top of the ridge, the whole of the rest compartment contains deciduous forest, the growth on the east slopes right to the top of the ridge is of a very promising nature. In the south-west is an old cultivated area, above which occurs a patch of fair Teak forest, another Teak area exists in the north-east corner of the compartment. The rest of the area is covered with fine Matti, Nana, Kindal, Jamba and Sissum, many of the trees being of large size. (b) *Natural Regeneration.*—The natural regeneration of Matti, Sissum, Kindal and Teak is fair on the lower slopes, in the more open places. In certain places, especially in the north-west, Jamba seedlings are found in great numbers. (c) *Undergrowth.*—Karvi occupies a large portion of the area, being in places very dense. Bamboos are scattered all over the area. (d) *Grazing.*—Grazing is restricted to in and round the fallow lands in the south of the compartment.	1 Matti— (a) Sound ... 7·8 (b) Unsound . 3·9 2 Nana ... 5·3 3 Kindal ... 13·0 4 Jamba ... 21·6 5 Teak ... 4·8 6 Sissum ... 4·4 7 Honni ... ... 8 Heddi ... ·1 9 Dhamni ... 2·4 10 Apta ... ·2 11 Jambul ... ·1 12 Womb ... 1·1 13 Kharsing ... ·4 14 Bharnigi ... ... 15 Other species . 34·9	The compartment contains much mature wood, and exploitation should not be very difficult or expensive. If burning of Karvi could be taken in hand at the proper time it would do enormous good. Much can be done here in freeing advanced Teak growth.
34	566·8	*North.*—A 25 feet cut line. *East.*—The Kendga Nalla. *South and West.*—The Handimadi Nalla.	(a) *Configuration.*—Aspect if anything south. The compartment lies on slightly undulating ground between the area formed by the junction of the Handimadi and Kendga rivers, the highest point being 145 feet in the east centre of the area. (b) *Rock and Soil.*—The underlying rock is laterite, which comes to the surface locally in the south of the	(a) *Growing Stock.*—The crop found in this compartment is entirely deciduous. The height growth of the older trees indicates a moderate depth of soil in the centre of the area, while the height growth in the south falls considerably below normal, and in places in the north-east Khair appears, which in these forests at once indicates a poor locality. Kindal is plentiful and though growing to a fair girth does not show great height growth. Most of the large sound Matti and Nana has been exploited, leaving a large percentage of	1 Matti— (a) Sound ... 7·7 (b) Unsound . 2·2 2 Nana ... 2·1 3 Kindal ... 9·8 4 Jamba ... 8·8 5 Teak ... ... 6 Sissum ... ·4 7 Honni ... ... 8 Heddi ... ·1 9 Dhamni ... ·1 10 Apta ... ·1 11 Jambul ... ·7 12 Womb ... ·3 13 Kharsing ... ·1 14 Bharingi ... 2·0 15 Other species . 65·6	There will be little to exploit in this compartment for some years. Natural Regeneration is poor owing to heavy Karvi and want of light, which could be let in by improvement fellings of inferior species.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
			compartment. The soil is generally fairly deep though in the south and again in a small area on the north boundary it is very shallow.	mature but unsound trees. The inferior species make up a large percentage of the growing stock. (*b*) *Natural Regeneration.*—The natural regeneration of Matti is moderate in the north and centre of the area, being poor in the south on account of the heavy growth of Karvi. (*c*) *Undergrowth.*—The area is covered with Karvi, and Dowgi Bamboos. (*d*) *Grazing.*—Grazing is carried on around the Bellargadda cultivation and on each side of Shurukbyl' Makigadda track.			
35	578·2	*North.*—The Handimadi and Hegar Nallas. *East.*—The Handimadi Nalla. *South.*—The Handimadi Nalla and Honalli cultivation. *West.*—A blazed line running straight from the north-west corner of the Honalli cultivation to the Hegar cultivation.	(*a*) *Configuration.*—The western half of the compartment is formed by a small hill rising to a height of 460 feet while the eastern half of the compartment is on level ground. (*b*) *Rock and Soil.*—The underlying rock in the east is laterite. The hill, in the west, is composed of basalt on the lower slopes and soft quartzite and hornblende towards the summit. The soil is poor in the east, where the laterite in places comes to the surface. On the hill slopes it is fair especially on the northern side.	(*a*) *Growing Stock.*—The growing stock is of deciduous character all over the area. In the south centre is the Math cultivation, while the villages of Honalli and Hegar lie on the north-west and south-west boundaries respectively. The presence of habitation in and round the compartment has resulted in continual hacking all over this area. The crop is generally speaking young. Above the Honalli cultivation on the slopes of the hill, occurs a patch of Teak consisting of young trees and seedlings. On the northern slopes is some fair Nana forest, mixed with many Jamba, a few Kindal and many inferior species. The east slopes of the hill contain some fair young Matti and Sissum growth, with many seedlings and small Bamboos. The east of the compartment is generally poor, containing young deciduous forest many Dowgi Bamboos and patches of old cultivation. (*b*) *Natural Regeneration.*—The natural regeneration in this compartment is in places very promising. It consists of Matti, Sissum, Teak—where Teak occurs, in the more open places. Jamba seedlings are plentiful on the top of the hill and on the northern slopes. (*c*) *Undergrowth.*—The undergrowth of Karvi is only local and not heavy, except in the north-west. Small Bamboos are scattered all over the area. (*d*) *Grazing.*—The eastern level portion is heavily grazed.	1 Matti— (*a*) Sound ... 8·1 (*b*) Unsound . 2·5 2 Nana ... 8·2 3 Kindal ... 16·6 4 Jamba ... 19·7 5 Teak ... 2·7 6 Sissum ... 6·9 7 Honni ... ... 8 Heddi ... ·8 9 Dhamni ... 3·8 10 Apta ... 1·1 11 Jambul ... ·5 12 Womb ... ·3 13 Kharsing ... ·2 14 Bharnigi ... ·1 15 Other species . 28·5	There is little to exploit in this compartment. Natural regeneration is very good, what the area requires is strict conservancy.
36	612·4	*North and East.*—The Handimadi Nalla. *South.*—The Hegar Nalla. *West.*—A 25 feet blazed line and Makigadda cultivation.	(*a*) *Configuration.*—Aspect east. Situated at the foot of the Siddugadda hill (1,333 feet) and stretching down to the Handimadi River. The elevation at the river is 100 feet rising by gentle incline to 260	(*a*) *Growing Stock.*—The greater portion of the area contains semi-evergreen, turning in the north-east to true evergreen forest, which were probably old cultivated areas. The centre and north-west of the compartment contain pure Jamba forest, with a few Nana, Kindal	1 Matti— (*a*) Sound ... 6·0 (*b*) Unsound ... ·9 2 Nana ... 6·2 3 Kindal ... 13·9 4 Jamba ... 36·4 5 Teak ... ... 6 Sissum ... ·4 7 Honni	The area has been heavily exploited in the past. It now wants time to recover. The great danger to this forest is the ever encroaching evergreen growth,

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks
1	2	3	4	5	6	7	8
			feet on its eastern boundary. The whole area drains outwards into the main stream. (*b*) *Rock and Soil.*—On the lower ground near the river the rock is laterite, while on the west boundary soft granite intersected with veins of milky quartz appear. The soil is deep in the east becoming somewhat shallower towards the west. The soil, however, is throughout favourable for tree growth.	and some Bharnigi trees scattered here and there and a few large Matti on the banks of the small nallas. To the south there occurs young deciduous forest of a not unpromising character. To the east along the river, are patches of evergreen and semi-evergreen intermixed with deciduous forest. Here some large Matti, Nana, Kindal and many Jamba trees are found mixed with inferior species and many Bamboos. All sound Matti, Nana and Jamba have been exploited from these forests. (*b*) *Natural Regeneration.*—The seedling growth in this area is chiefly of Jamba, only Matti, Kindal, Nana, appearing in the more open places in the centre and east. On the west boundary besides the above species a few Apta, Bharnigi and Dhamni seedlings have established themselves. (*c*) *Undergrowth.*—Many small Bamboos occur in the more deciduous portions of the forest. Where these do not occur Karvi exists, while in the evergreen areas laurels and other shrubs cover the ground. (*d*) *Grazing.*—Grazing is not heavy being confined to near the Hegar and Makigadda cultivations.	8 Heddi ... ... 9 Dhamni ... 1·1 10 Apta ... ... ·7 11 Jambul ... ·7 12 Womb ... ·2 13 Kharsing ... ... 14 Bharnigi ... 1·3 15 Other species... 32·2		which to guard against is difficult.
37	500·0	*North and East.*—A blazed line and the Handimadi Nalla. *South.*—The Hareguli Nalla. *West.*—A 25 feet blazed line, a branch of Chankani Nalla and a demarcation line.	(*a*) *Configuration.*—Aspect east and south-west above Marugadda cultivation. The compartment forms a narrow strip of land lying on the lower slopes and spur of the Torasige Hill, rising from 130 feet at the river to 400 feet up the hill side. The gradients are gentle in the south and somewhat steep in the north, before passing through the gorge to Chankhani. The area is drained by many small nallas running eastwards into the main stream. (*b*) *Rock and Soil.*—The underlying rock near the river is laterite and basalt and quartzite on the slopes. The soil is deep along the river and in the Chankhani basin and fair on the lower slopes.	(*a*) *Growing Stock.*—The growing stock varies considerably in composition in this area. Sound Matti has been exploited, though some good trees have been left. To the south occurs a patch of evergreen forest containing much fine Bharnigi, large Mango, Howga, Goting, Kindal and Nana. Between Todasalibail and Marugadda is some very fair high forest and old kumri lands, the former containing good Bharnigi, Nana, Kindal and Jamba, while the latter is covered with young Jamba growth intermixed with excellent Nana poles on the slopes and Matti and Kindal near the small nallas. In the Chankhani basin are fair Matti, Kindal and a few Nana, of the former species many have been already exploited. Round the edge of the cultivation evergreen forest occurs. (*b*) *Natural Regeneration.*—The forest is well stocked and little light let in so that only shade bearers, such as Jamba and Nana have regenerated. (*c*) *Undergrowth.*—The undergrowth is not heavy in this area being restricted to patches of Karvi and a few evergreen shrubs. (*d*) *Grazing.*—Grazing is limited to the vicinity of the cultivations of Marugadda and the Chankani basin.	1 Matti— (*a*) Sound ... 3·3 (*b*) Unsound ... 1·1 2 Nana ... 7·0 3 Kindal ... 6·8 4 Jamba . 23·5 5 Teak ... ... 6 Sissum ... ... 7 Honni .. ... 8 Heddi ... ... 9 Dhamni ... ·4 10 Apta ... ·2 11 Jambul ... ·4 12 Womb ... ... 13 Kharsing ... ... 14 Bharnigi ... 2·9 15 Other species... 54·4	Exploitation should present few difficulties. In the old Kumri lands which are extensive in this compartment much can be done to improve the prospects of the partly suppressed Nana and Kindal poles. If these and other valuable species are not favoured in these areas the forest will turn in time to pure Jamba which is a stepping stone to evergreen forest.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
38	585·6	*North and East.*—A 25 feet blazed line. *South.*—The Handimadi Nalla and a small nalla. *West.*—The Handimadi Nalla.	(*a*) *Configuration.*—Aspect west turning to south-west in the south of the area. Situated on the lower slopes and spurs of the Shemi Hill rising by moderate gradients from 100 feet in the south to 507 feet in the centre of the eastern boundary. The whole area is drained by many small nallas rising westwards to the main stream. (*b*) *Rock and Soil.*—The underlying rock is basalt and laterite along the river, turning to crystalline rock on the slopes. The soil is deep in the ravines and more level ground, becoming rather poor on the slopes and especially in the north-east.	(*a*) *Growing Stock.*—The growing stock in the north and on the upper slopes, is semi-evergreen containing many Jamba. The stocking is full except for a bare patch of ground above Kanchibail and an area to the south of the 507 feet hill. In the south-west and on the lower slopes the forest is of more deciduous character, containing especially along the small nallas and on the more level ground, some large Matti, Kindal and to a lesser extent Nana. The height growth of this part of the forest is fully normal. Along the main stream are scattered large Bharnigi, while Jamba is the prevailing species throughout the area. (*b*) *Natural Regeneration.*—Jamba seedlings are scattered profusely all over the area, while advanced growth of Nana and Kindal is found in the Jamba pole woods. Matti seedlings occur in and round the old Kumri areas, now forming more or less blank patches on the hill side. In the true deciduous area Kindal, Nana and Dhamni seedlings are found in small quantities. (*c*) *Undergrowth.*—Bamboos occur on the lower slopes, with patches of Karvi. Under the thick Jamba pole woods little undergrowth appears, while in the evergreen shrubs and canes occur. (*d*) *Grazing.*—Grazing is very limited being only carried on along the banks of the river.	1 Matti— (*a*) Sound ... 3·5 (*b*) Unsound ... 2·0 2 Nana ... 5·0 3 Kindal ... 7·8 4 Jamba ... 40·4 5 Teak ... ... 6 Sissum ... ·4 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... ·5 10 Apta ... ·3 11 Jambul ... ·6 12 Womb ... ·2 13 Kharsing ... ... 14 Bharnigi ... ·8 15 Other species... 38·5		Exploitation will present no great difficulties. The deciduous species should be encouraged in the Jamba area, even if the species have no present value. The blanks should be dibbled up with seed of the better species.
39	910·4	*North.*—A 25 feet blazed line and the Harugule Nalla. *East.*—The Harugule and Kolge Nallas. *South.*—A 25 feet cut-line. *West.*—The Handimadi River and a small nalla in the north-west.	(*a*) *Configuration.*—Aspect south-east in the eastern half and west and south-west in the western half of the compartment. Down the centre of the compartment running in an "S" shape is a low range of hills, the heighest point of which is not more than 450 feet above M. S. L. Innumerable small nallas drain the area eastwards into the Kolga Nalla and westwards into the Handimadi River. (*b*) *Rock and Soil.*—The underlying rock in the low lying areas is laterite, while the hills are composed of a fine grained basalt. The soil is deep throughout.	(*a*) *Growing Stock.*—The whole area contains more or less evergreen growth, the central north portion being true evergreen which gradually changes to semi-evergreen intermixed with a good many of deciduous species towards the south. In the true evergreen are found a few scattered large Matti, Kindal, Nana, Goting, Jamba mixed with such evergreen species as Howga, Bobbi, Mango, Bherendi, etc. The absence of young trees of the deciduous species is here very marked. Coming out of the true evergreen forest we get nearly pure patches of Jamba, mixed with a few trees of the same age, such as Nana and Kindal. Along the Harugule Nalla and Handimadi River large Nana, Kindal, Matti, Jamba are found, the height growth of which is above normal. (*b*) *Natural Regeneration.*—The regeneration in the south-west of Matti, Kindal and Jamba is good, while in the interior of the compartment only Jamba and evergreen seedlings are found.	1 Matti— (*a*) Sound ... 3·4 (*b*) Unsound... 1·4 2 Nana ... 5·2 3 Kindal ... 4·9 4 Jamba ... 18·5 5 Teak ... ... 6 Sissum ... ·3 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... ·3 10 Apta ... ·2 11 Jambul ... ·3 12 Womb ... ·3 13 Kharsing ... ... 14 Bharnigi ... ·6 15 Other species ... 64·6		Exploitation will not be easy from these dense forests. To do anything in the form of improvement felling will also be difficult, as the evergreen growth is very heavy.

APPENDIX III—*concluded.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
				(*c*) *Undergrowth.*—Patches of Karvi and a few Bamboos in the south-west, and evergreen shrubs elsewhere. (*d*) *Grazing.*—Grazing is very limited, being carried on in the west and along the river in the south-east.			
40	666·0	*North.*—A 25 feet blazed line. *East.*— Do. *South.*—A 25 feet cut-line and the Kendga Nalla. *West.*—The Kolga and Harugule Nallas.	(*a*) *Configuration.*—The compartment covers much broken undulating ground, in which all aspects are represented, the highest point of which rarely exceeds 250 feet above M. S. L. The area is drained by the Kolga and Kendga Nallas. (*b*) *Rock and Soil.*—The underlying rock is chiefly laterite, crystalline rock only appearing here and there on the hillocks. The soil is deep everywhere and very well suited to tree growth.	(*a*) *Growing Stock.*—The compartment contains a variety of types of forest. In the south-east, along the foot of the hills, and again in the extreme north of the compartment evergreen forests are found, in which occur very large Matti, Nana, Bharnigi, Mango and Kindal scattered here and there. To the north of Kendga village a good deal of young Jamba forest has come into existence on the old Kumri areas. To the south-west, between the junction of the two rivers, the forest is open, containing inferior species mixed with a few Honni and Matti. West of the Kendga River the forest is of a more deciduous character, out of which many of the large Matti, Nana and Kindal have been exploited. In the neck of the compartment the forest is semi-evergreen, the large trees of the better species having been exploited in 1905. Round the Kolga cultivation in the extreme north the forest is noticeable for its nice patches of young Matti and Nana intermixed with Jamba and Bharnigi forest. (*b*) *Natural Regeneration.*—The condition of the regeneration varies greatly. It is good in the south and west portions of the area and very poor in the south-east. (*c*) *Undergrowth.*—Karvi and a few Bamboos in the west, and Jamba, evergreen shrubs and canes elsewhere. (*d*) *Grazing.*—Grazing is confined to the vicinity of the cultivation and to each side of the Surukbail-Kendga foot-path.	1 Matti— (*a*) Sound ... 3·8 (*b*) Unsound . 1·5 2 Nana ... 4·4 3 Kindal ... 6·8 4 Jamba ... 15·9 5 Teak ... ... 6 Sissum ... ·2 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... 2·0 10 Apta ... ·4 11 Jambul ... ·3 12 Womb ... ·3 13 Kharsing ... ·2 14 Bharnigi ... 1·3 15 Other species . 62·9		Exploitation presents no difficulties, judging from the heavy fellings in part. The natural regeneration in the north and east is not satisfactory, probably the only way to favour the better deciduous species would be to form small blanks in the semi-evergreen tracts and dibble these up with deciduous species.

APPENDIX III—*continued.*

South of the River.

BLOCK No. XXV.

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
41	442·8	*North and West.*—The Gangavali or Bedti River. *East.*—A cut-line between the Ankola and Arbail Working Plan. *South and East.*—A 25 feet blazed line. *West.*—The Hareghad Nalla.	(*a*) *Configuration.*—Aspect north-west. The compartment is situated on the lower slopes and spurs of the Togi ridge with its north-west boundary lying along the Gangavali River. The gradients are in places steep, rising from 200 feet on the edge of the Shovkar cultivation to 805 feet in the south-east and 750 feet in the south-west of the area, a narrow strip of level ground being formed along the banks of the main stream. (*b*) *Rock and Soil.*—The underlying rock on the lower ground, near the river, is laterite, while on the slopes schists and sandstone occur. The soil is deep on the level and lower slopes and moderately deep on the hill sides.	(*a*) *Growing Stock.*—With the exception of a small area in the north-east, which contains evergreen forest, the rest of the growth is of deciduous character. The height growth near the river and on the lower slopes is up to 100 feet, while on the slopes it falls off to 75 feet in height. On the 404 feet hill in the north a small patch of young Teak occurs. The locality is a very good one for growth of big trees, but all the Matti and Nana was exploited in 1907, leaving a very meagre stock of young trees of the better species. Kindal, Dhamni are fairly represented and Matti is scattered sparsely all over the area except in the south-east corner of the compartment. The area before felling contained a mature crop, so that there was little place for secondary growth. Now that light has been let in a new crop should soon appear as the undergrowth is naturally not heavy and the locality most favourable for regeneration. (*b*) *Natural Regeneration.*—The cut-lines and glades show profuse natural regeneration of Kindal, Nana, Matti, Jamba and inferior species. (*c*) *Undergrowth.*—Not heavy. Karvi appears in small patches on the upper slopes and clumps of large Bamboos occur below. (*d*) *Grazing.*—The Grazing is heavy on the level ground.	1 Matti— (*a*) Sound ... 4·3 (*b*) Unsound . 1·1 2 Nana ... 6·2 3 Kindal ... 15·8 4 Jamba ... 11·6 5 Teak ... ·4 6 Sissum ... 1·3 7 Honni ... ·1 8 Heddi ... ·1 9 Dhamni ... 5·3 10 Apta ... ·9 11 Jambul ... ·3 12 Womb ... 1·6 13 Kharsing ... ·9 14 Bharnigi ... ·9 15 Other species... 49·2		Exploitation is a thing of the past for many years to come. The trees exploited in 1907 were very fine. A little might be done by improvement felling, but far more by restricting grazing of the Shovkar cattle.
42	610·0	*North-East.*—The Haroghad Nalla. *South-East.*—A 25 feet blazed line. *South.*—The Sagadia Nalla. *West.*—The Gangavali River.	(*a*) *Configuration.*—Aspect generally north-west. The compartment is situated at the lower extremity of the Dorangiri spur, rising from 176 feet on the river to 876 feet on the south-west boundary. The ground in the north-west is undulating to flat, while it rises in the south-east portion of the compartment with stiff gradients to the outer boundary. (*b*) *Rock and Soil.*—Laterite is found on the lower ground while gniess and striated sand-stones occur on the hill side. The soil is fair to good below, the hill sides being poor and rocky.	(*a*) *Growing Stock.*—The growing stock is of deciduous character. On the level ground the forest attains a height of 90 feet, rather open in places but the growth of Matti, Kindal, Heddi, Nana, Jamba and Sissum is good. On and round the 520 feet hill occurs a patch of young Teak of average quality. Between the 520 and 876 feet hills good Matti is being exploited in 1908. On the rising up the steep slopes of the 876 feet hill, Matti disappears and a forest of Kindal, Womb, Dhamni, Heddi and much Jamba is found, some of the trees being of large size. (*b*) *Natural Regeneration.*—In the plain the natural regeneration is confined to Sissum, Matti, Kindal, Jamba, etc., it being much kept back by grazing. On the slopes it is good where "Chiva" bamboo does not occur. (*c*) *Undergrowth.*—Not heavy on the level ground, scattered Bamboos being found here and there. On the hill side patches of dense "Chiva" bamboo growth occurs. (*d*) *Grazing.*—Grazing is confined to the flat portion of the compartment, where it is heavy.	1 Matti— (*a*) Sound ... 4·9 (*b*) Unsound . 1·5 2 Nana ... 3·5 3 Kindal ... 24·3 4 Jamba ... 23·6 5 Teak ... ·5 6 Sissum ... 1·1 7 Honni ... ·5 8 Heddi ... ·7 9 Dhamni ... 2·5 10 Apta ... ·4 11 Jambul ... ·3 12 Womb ... 3·5 13 Kharsing ... ·5 14 Bharnigi ... ·2 15 Other species . 33·0		Exploitation of Matti, Kindal and Nana took place in 1908. As in compartment 41, grazing is the difficulty.

APPENDIX III—*continued.*

Compartment. No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
43	706·0	*North.*—The Sagdia Nalla. *East.*—A 25 feet blazed line. *South.*—The Hegar Nalla. *West.*—The Gangavali River.	(*a*) *Configuration.*—Aspect generally north-west. The compartment is situated on the lower slopes of the main range, and contains three or four hills or semi-detached spurs, the highest of which is 611 feet above M. S. L. Towards the river is a narrow strip of flat ground. (*b*) *Rock and Soil.*—The underlying rock on the river banks is laterite and alluvial deposits. On the spurs and hill sides a variety of rock occurs, such as schists, striated sandstones, and in places approaching a shale or slate. The soil is deep on the level ground, near the river, consisting of alluvial deposits and laterite soil. Where the crystalline rocks occur it is shallower but favourable to tree growth.	(*a*) *Growing Stock.*—The crop is deciduous with the exception of an evergreen area in the north-east and another small patch in the extreme south of the compartment. On and round the 460 feet hill is a fairly large Teak area, with some exploitable trees in it. On the more level ground to the west, is good forest of Matti, Kindal, Jamba with a fair percentage of Sissum, Womb, Dhamni and a few Honni, Apta and Nana. Of inferior species Karmal and Char predominate. From this area many of the large Matti and Nana have been exploited, the middle aged classes being, however, well represented. On the spurs and slopes rough deciduous forest is found, composed of Kindal, Jamba, Womb, a few Nana, Kosum and many inferior species, Matti only being found in the small ravines. (*b*) *Natural Regeneration.*—Seedlings only occur on the hill side where the Chiva bamboo is absent. On the level ground the regeneration of Matti, Kindal, Apta, is fair and mixed with a few Sissum and Dhamni. (*c*) *Undergrowth.*—On the spurs dense Chiva bamboos, on the flat ground the undergrowth is practically nil. (*d*) *Grazing.*—Grazing along the Hegar foot-path and near the cultivation is heavy.	1 Matti— (*a*) Sound ... (*b*) Unsound ... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species ..	 6·4 2·9 4·6 15·1 17·2 3·4 1·6 ... ·4 2·4 1·0 ·5 ·7 ·3 ·5 43·0	Exploitation in the past has been heavy, and except Kindal on the hill side, little remains to be exploited. The locality is a good one, and provided grazing is kept in check there is no fear that natural seedlings will not establish themselves in profusion.
44	562·8	*North.*—The Gangavali River and Hegar Nalla. *East.*—The Hegar Nalla, the cultivation, a 25 feet blazed line and a nalla. *South.*—The compartment runs to a point. *South-West.*—The Konal Nalla and one of its bye nallas running to the top of the Kamrigudda hill.	(*a*) *Configuration.*—Aspect, north and north-west. The northern half of the compartment lies on flat ground, stretching from the Gangavali River; ¾ of a mile south-eastwards. From here at an elevation of 150 feet the ground rises with steep gradients to 1,091 feet in the south of the compartment, the whole area being drained by Godi Nalla, running north-westwards into the main stream. (*b*) *Rock and Soil.*—The underlying rock towards the river is laterite. The hills are composed of striated sandstones and shales, and which in places resemble a poor quality of slate. The soil is deep on the level ground and very fairly good on the hill sides.	(*a*) *Growing Stock.*—On the flat ground very fair Matti, Kindal, Nana, Jamba forest is to be found, though not containing a great number of large sound trees, the large Matti being very faulty, and of large Nana there are very few. Stretching from the 588 feet to the 1,091 feet hill, on the ridge and slopes Teak occurs of all sizes, some of the trees being very well grown. On the lower slopes is very fair Matti, Kindal, Nana and Jamba forest, on the middle and southern slopes Matti is scarce but appears again as a fairly well grown tree on the plateau. Jamba is found chiefly on the northern slopes and in less quantities on the more western aspects. (*b*) *Natural Regeneration.*—The natural regeneration of Kindal, Jamba, some Teak and inferior species is plentiful on the slopes, while at the higher elevation in the Teak area, the seedlings of this species are very numerous, more so than in any other place in the Ankola foresta. Mixed with them are Matti, Kindal and many Jamba seedlings. (*c*) *Undergrowth.*—The undergrowth in the plain and on the hill slopes is restricted to the nalla edges. On the edge of the plateau patches of Karvi occur where Teak is absent, and on the plateau itself Chiva Bamboos are found. (*d*) *Grazing.*—Grazing is restricted to the area between the river and the Hegar foot-path, where the poorer patches of forest occur.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kassing ... 14 Bharnigi ... 15 Other species .	11·6 3·2 4·2 17·9 25·0 7·1 1·5 ·2 ·1 2·7 ... ·3 ·4 ·1 ·1 25·6	Exploitation of the hill sides and plateau will be difficult. This is one of the richest Teak areas in the locality. Seedlings of all sorts are numerous on the hill sides and should be freed of overgrowth where possible.

APPENDIX III—*continued.*

Compartment No.	Area.	Bonndaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
45	775·0	*North*.—The Gangavali River. *East*.—The Konal Nalla. *South*.—A nalla on each side of the hill joined by a 25 feet blazed line. *West*.—The Gangavali River.	(*a*) *Configuration*.—Aspect east and west. The area lies in an angle formed by a bend of the Gangavali River. To the west is level ground reaching down to the river. In the east occurs a ridge of hills, running due north and south and terminating to the south, beyond the limits of the compartment, in the Malapurgudda Hill. The gradients on the western slope are moderate falling fairly abruptly from 778 feet on the eastern side down to the Konal cultivation. (*b*) *Rock and Soil*.—The underlying rock is laterite in the plain, while the hill is composed of schists and quartzite. The soil is deep on the flat ground becoming rather poor towards the top of the hill.	(*a*) *Growing Stock*.—In the plain towards the north-west occurs an old cultivated area, surrounded by young Matti forest. In the north-east occurs a forest of dense large Bamboos intermixed with straight scattered immature Nana, Kindal, Womb, Dhamni, inferior species and but few Matti. The south-west is similar forest to that in the north-east, but the growth is much more advanced containing many very fine Nana, Jamba, Kindal, Dhamni and Womb of great size and over 100 feet high, Matti being conspicuous by its absence and inferior species relatively few in number. The hill contains good rough deciduous forest of the above species, but the height growth falls off to 75 feet. Towards the top of the ridge a few scattered Teak occurs. (*b*) *Natural Regeneration*.—The natural regeneration under the dense Bamboo forest is practically nil. On the slopes where the big bamboos do not occur, Kindal, Jamba, Nana, Dhamni, Womb and Kharsing sendlings occur. (*c*) *Undergrowth*.—Nil on the level ground, for the huge Bamboos cannot here be classed as undergrowth and moderate Karvi growth on the hill sides. (*d*) *Grazing*.—Grazing is carried on all over the flat portion of the area.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak .. 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species...	 3·3 ·7 8·0 14·6 19·4 ·3 3·4 ·3 ... 14·3 ·6 ... 3·2 1·5 ... 30·4	Exploitation should present no difficulties, the logs being taken across the river at Kotha. This is one of the richest Nana areas in Ankola. The difficulty is the regeneration under the heavy Bamboo growth, the present crop having no doubt come into existence before the Bamboos became so heavy. A seedling year of the Bamboo will have to be carefully watched.
46	553·2	*North*.—A tributary of the Konal Nalla, running in the north-east of the compartment up to the top of the Kamrigudda Hill. *East*.—A 25 feet blazed line and a small nalla running into Kaleshwar cultivation. *South*.—The Kurnap Nalla. *West*.—The Konal and Malapurgudda Nallas.	(*a*) *Configuration*.—Aspect generally south-west. The compartment lies on the western slopes and spurs of the Kamrigudda Hill (1,200 feet). The hill side is much cut into by deep ravines, the slopes of which are extremely steep, while the top of the hill, which lies on the north-east of the area, forms an undulating plateau. In the extreme south of the compartment is the Kankanhalli cultivation. (*b*) *Rock and Soil*.—The underlying rock varies greatly, schists, shales and semi-metamorphosed sandstones forming the bulk of the rock. The soil is deep in the south-west and on the plateau, being moderate to poor on the steep hill sides.	(*a*) *Growing Stock*.—With the exception of a small area of evergreen round the summit of the Kamrigudda Hill the growing stock is deciduous in character. All over the northern and eastern slopes of the hill and stretching for a short distance on to the plateau, good growth of Teak is found some of the trees being of exploitable size. Mixed with these are many Kindal, Jamba and to a lesser extent Nana and Sissum, Dhamni, being represented by small trees only. The percentage of inferior species is not high, the prevailing species being Kumbia and Karmal. The southern spur contains practically no Teak, the forest otherwise resembling that described above, but of rather more inferior quality. On the plateau the forest is somewhat open, fine Kindal, Jamba and Nana occur and a few Matti mixed with inferior species. (*b*) *Natural Regeneration*.—The natural regeneration of Teak, Kindal, Jamba on the slopes is excellent, while Matti seedlings are found in the extreme north-west and south-west of the area. (*c*) *Undergrowth*.—Scattered Bamboos and light Karvi growth is found on the lower lying areas, on the slopes the undergrowth is practically nil, while on the plateau heavy Karvi, occurs where Teak is absent. In places clumps of Chiva Bamboos occur. (*d*) *Grazing*.—Grazing is restricted to small areas in the north-west corner of the compartment.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sisaum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species.	 4·8 2·4 4·4 16·1 30·1 5·8 3·0 ·2 ·1 2·4 ·3 ·5 ·6 ·2 ·1 29·0	Exploitation will not be easy, as the gradients are very steep and the ground very broken. The natural regeneration is excellent and only wants fostering to convert it into promising advanced growth.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
47	740·0	*North.*—Two nallas one on each side of the hill and a 25 feet blazed line joining them over the crest of the ridge. *East.*—The Konal and Malapur Nallas. *South.*—The Kurnap Nalla. *West.*—The Kankanhalli cultivation, the Kotha cart-track and the Gangavali River.	(*a*) *Configuration.*—Aspect west turning round the Malapurgudda Hill to due east. In the north of the compartment is the Malapurgudda Hill, running north and south down the centre of the compartment finally shading away to level ground in the extreme south of the area. The gradients on the lower slopes of the hill are moderate, becoming steeper towards the crest of the ridge. (*b*) *Rock and Soil.*—The underlying rock on the level ground is laterite. The hill is composed of a trap, intersected by a strata of metamorphosed striated grey-white sandstones decomposing rapidly. The soil is good on the lower slopes and rather shallow on the hill side.	(*a*) *Growing Stock.*—The whole area contains true deciduous forest. On the top of the hill a few scattered Teak occur. The slopes contain rough deciduous forest of Kindal, Nana, Jamba, Dhamni, Womb, Karmal, etc. Towards the west is a similar forest to that described in compartment 45, containing large Bamboos and fine Nana, Kindal, Jamba and Womb of great size with but few Matti or inferior species. In the extreme south the forest is rather open and the height growth falls off considerably. (*b*) *Natural Regeneration.*—Seedlings are practically nil where dense Bamboo growth occurs in the plain and where openings occur advanced growth of Nana, Jamba, Sissum and Kindal is found. On the hillsides the seedling growth of Jamba, Womb, Sissum and Kindal is fair to good. (*c*) *Undergrowth.*—Nil on the level ground, if the huge Bamboos are not taken into account. Moderate Karvi growth is found on the slopes, being nowhere dense and mixed with small Bamboos. (*d*) *Grazing.*—Grazing is confined to the south and south-west on flat ground.	1 Matti— (*a*) Sound ... ·7 (*b*) Unsound . ·3 2 Nana ... 7·3 3 Kindal ... 12·1 4 Jamba ... 23·3 5 Teak ... ·1 6 Sissum ... 3·7 7 Honni ... ·1 8 Heddi ... ·1 9 Dhamni ... 9·2 10 Apta ... ·3 11 Jambul ... ... 12 Womb ... 4·9 13 Kharsing ... 2·6 14 Bharnigi ... ... 15 Other species . 35·3	Similar to those of compartment 45.
48	605·2	*North and East.*—The Halvalli Kotha cart-track and the cultivation. *South.*—The Hashi Nalla. *West.*—The Hashi Nalla.	(*a*) *Configuration.*—With the exception of a low flat hill rising to 408 feet in the north of compartment, the ground is undulating to flat. (*b*) *Rock and Soil.*—The underlying rock is laterite, the soil being deep in the centre and rather poorer in the north and south of the area.	*Growing Stock.*—The growing stock is entirely deciduous in character throughout the area. All through the centre of the area and to the west, along the Hashi Nalla, fine Nana, Jamba, Kindal and Sissum forest is found containing many mature trees of up to 100 feet in height. Matti has been exploited from this area, only leaving a number of large unsound trees. Dhamni, Kharsing and Womb are fairly represented, the whole is mixed with inferior species, of which large Karmal are most noticeable. On the 408 feet hill, Jamba and Karwi prevail, while in the south the forest is of a younger age. Here what now looks to be a promising crop of Matti, Kindal, Sissum, etc., has established itself, being some 40 feet in height, but whether it will ever produce large timber is questionable looking to the shallow nature of the soil. (*b*) *Natural Regeneration.*—Seedlings are found scattered in open places all over the area, being most noticeable in the south where fair Matti, Kindal and Jamba reproduction is found. (*c*) *Undergrowth.*—The undergrowth is very light, except for large clumps of Bamboos in the east and high Karvi on and round the hill in the north. (*d*) *Grazing.*—Grazing is confined to the south-east of the compartment where it is somewhat heavy.	1 Matti— (*a*) Sound ... 1·2 (*b*) Unsound... 1·3 2 Nana ... 12·2 3 Kindal ... 15·0 4 Jamba ... 19·4 5 Teak ... ... 6 Sissum ... 3·3 7 Honni ... ... 8 Heddi ... ... 9 Dhamni ... 13·5 10 Apta ... ... 11 Jambul ... ... 12 Womb ... 2·6 13 Kharsing ... 1·7 14 Bharnigi ... ·2 15 Other species . 29·6	Exploitation should present no difficulties. An improvement felling more in the shape of a thinning is necessary in the young wood in the south of the compartment.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
49	798·0	*North.*—The Kurnap Nalla. *East.*—A blazed line chiefly running along the Kankanhyphi-Muski foot-path. *South.*—A small nalla starting from the 1,775 feet hill and running into the Halvalli Nalla. *West.*—The Halvalli Nalla.	(*a*) *Configuration.*—Aspect generally west. The compartment lies on the slopes of the 1,403 feet hill and running down to the Halvalli Nalla at the 250 feet contour line. The west of the compartment slopes gently down to the river, while the eastern portion contains the steep slopes on the big hill. The area is well drained by innumerable small nallas running into the main stream. (*b*) *Rock and Soil.*—The underlying rock is laterite to the top of the hill. Such a formation is ourious as elsewhere in Ankola a strata of metamorphic crystalline rock is generally found lying between the low lying laterite and the upper layer forming the top of the ghats. On a spur in the south schistose rock occurs locally.	(*a*) *Growing Stock.*—With the exception of a small area of evergreen forest on the south top of the hill, the forest is of deciduous character. By the Kankanhalli cultivation, in the north of the compartment, the forest is somewhat open, and signs of former cultivation appear, now covered with young Matti forest. All the more level central and south portions of the area contain good, though somewhat open forest of Kindal, Nana, Matti, Jamba and large Heddi, mixed with many Karmal and Kumbia, the height growth is, however, reduced by the moderately shallow soil in this locality. Many large Heddi and Matti have been exploited from this area. On the hill side is found rough deciduous forest of Kindal, Nana, Sissum, Dhamni, Honni, Kossum with much Jamba in places, especially on the upper and southern slopes. Very fine Nana exists on the spur above Kankanhalli, while on the top of the hill a few large Honni and Nana occur. (*b*) *Natural Regeneration.*—Fair regeneration of Kindal, Sissum, Jamba, Dhamni, Apta, etc., on the hill sides, and Matti, Kindal, Jamba and a few Heddi on the more level ground. (*c*) *Undergrowth.*—Scattered clumps of Bamboo and little weed growth on the flat ground and Karvi with Chiva bamboos on the slopes.	1 Matti— (*a*) Sound ... 10·4 (*b*) Unsound... 4·1 2 Nana ... 6·6 3 Kindal ... 17·7 4 Jamba ... 24·5 5 Teak ... ... 6 Sissum ... 2·8 7 Honni ... ·1 8 Heddi ... 1·7 9 Dhamni ... 3·4 10 Apta ... ·1 11 Jambul ... ·1 12 Womb ... 1·3 13 Kharsing ... ·7 14 Bharnigi ... ... 15 Other species.. 26·5		Exploitation of the hill side will not be easy. The regeneration is not altogether satisfactory, and the reason for this state of things is hard to find. The absence of Teak on the hill side is noticeable, it being a locality suited to the species, except for the fact that the underlying rock is laterite.
50	667·6	*North.*—A small nalla coming down from the 1,775 feet hill. *East.*—A 25 feet blazed line. *South.*—The Madanmani Nalla on the east of the main stream and a small nalla on the west. *West.*—A 25 feet blazed line and cultivation.	(*a*) *Configuration.*—All aspects are found in this area. The compartment lies towards the top end of the Halvalli-Kamani valley, much intersected by strips of cultivation in the centre and stretching not higher than 800 feet up the hills on both sides of the valley. The area is drained by the Halvalli Nalla and by its many small bye streams, the gradients being moderate to steep in the east and west of the compartment and gentle elsewhere. (*b*) *Rock and Soil.*—The underlying rock is laterite with out crops of crystalline rock on the upper slopes. The soil is deep round the river and moderately so on the slopes.	(*a*) *Growing Stock.*—The growing stock is deciduous, except for a small patch of evergreen in the south-east on and round the summit of the 809 feet hill. North of the Halvalli cultivation is fair deciduous forest containing some large Kindal and Nana and a few Matti. Between Halvalli and Unchalli the forest is of poor character, especially on the slopes. Between the Unchalli and Kamani cultivations, on the lower slopes of the Urbylgadda Hill, very fair Matti, Kindal and Jamba forest exists, with a patch of simllar forest directly after crossing the river westwards. The 704 feet hill on the west of the river, contains rough deciduous forest of no great value. (*b*) *Natural Regeneration.*—Regeneration is fair to good in the south and on the slopes and decidedly poor in the centre of the compartment. (*c*) *Undergrowth.*—Scattered clumps of Bamboo occur on the flat ground, Karvi on the slopes and between Unchalli and Kamani valleys. (*d*) *Grazing.*—All over the flat portion being heavy round the cultivations.	1 Matti— (*a*) Sound ... 8·9 (*b*) Unsound... 1·6 2 Nana ... 5·7 3 Kindal ... 16·3 4 Jamba ... 15·8 5 Teak ... ·1 6 Sissum ... 1·4 7 Honni ... ·1 8 Heddi ... ·1 9 Dhamni ... 1·6 10 Apta ... ·2 11 Jambul ... ·2 12 Womb ... ·5 13 Kharsing ... ·7 14 Bharnigi ... ·3 15 Other species.. 46·5		Exploitation will not be cheap from this compartment as it lies far from the main road and Gangavali River. The excessive grazing between the Halvalli and Unchalli valleys together with petty packing has partly destroyed the forest in this locality.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
51	694·8	*North.*—The Hashi Nalla. *East.*—The Halvalli Nalla. *South.*—A small nalla north of the 704 feet hill. *West.*—A 25 feet blazed line.	(*a*) *Configuration.*—Aspect east to north-east and west. The area lies at the foot and on the lower slopes of the Kotegudda hill (1,841 feet) and extends from the west side of the Halvalli cultivation, on the south to the Hashi Nalla in the north. Between the foot of the main range and the river, and running parallel to both, is a low ridge not exceeding 235 feet in height. The gradients are gentle to moderate, the ground being nearly flat in the northern portion of the compartment. (*b*) *Rock and Soil.*—The underlying rock on the level-ground and in the valleys is laterite, while the hill sides are composed of shale, gneiss and partially metamorphosed sandhyple stones. The soil is deep in the valley and in the north of compartment, fair on the slopes and rather poor on the ridge.	(*a*) *Growing stock.*—The growing stock is of deciduous character, except for a small area of evergreen forest in the extreme north-west of the compartment. In the north of the area and again between the hill slopes and small ridge, good forest occurs, containing large Matti and Kindal, the latter species, however, is much subject to "water-blister." A few Nana and many large inferior species as found in these localities and creepers are very numerous in the northern area. The ridge contains rather poor deciduous forest, improving on the lower and eastern slopes towards the Halvalli river. The slopes of the main range of hills contain fair Matti forest lower down, mixed with patches of good Kindal, Nana and Womb, while on rising up the slopes Jamba becomes the prevailing species. In the ravines in the north-west a large number of "Tali Palm" seedlings have established themselves. (*b*) *Natural regeneration.*—The regeneration except of Jamba is for some reason poor in this locality, in spite of the undergrowth not being heavy. It is true, Matti and Kindal seedlings have established themselves on the lower lying areas, but not in sufficient number to assure the future of the forest. (*c*) *Undergrowth.*—Generally not heavy, being limited to clumps of Bamboos especially on the ridge and in the north, and to patches of Karvi and scattered Kuda elsewhere. (*d*) *Grazing.*—Grazing is limited to an area along the river and to the neighbourhood of the Halvalli cultivation.	1 Matti— (*a*) Sound ... 14·2 (*b*) Unsound . 3·2 2 Nana ... 6·3 3 Kindal ... 15·3 4 Jamba ... 24·9 5 Teak ... ·1 6 Sissum ... 2·1 7 Honni ... ·3 8 Heddi ... ·2 9 Dhamni ... 3·2 10 Apta ... ·1 11 Jambul ... ... 12 Womb. ... 1·9 13 Kharsing ... 1·1 14 Bharnigi ... ... 15 Other species . 27·1		Exploitation on the whole should present no serious difficulty. Systematic cutting of Bamboos is necessary in the north of the area. A good deal of thinning of the inferior species is necessary, with the object of improving the natural regeneration.
52	657·6	*North.*—The Hashol Nalla and a part of a 25 feet cut-line. *East.*—The Hashol Nalla. *South.*—A blazed nalla coming down from the 1,144 feet hill and joining the Hashol Nalla. *West.*—A 25 feet cut line on the ridge of the Bidralli Hill.	(*a*) *Configuration.*—Aspect south-east throughout. The compartment lies on the south-east slope, at the northern and of the Bidralli-Dongri hill and stretches down to the Hashi Nalla. The gradients in the east are gentle, rising from 158 feet at the junction of the Hashi and Gangavali Rivers, in the north-east, to 1,144 feet in the south-west corner of the compartment, the gradients being very steep towards the crest of the ridge. (*b*) *Rock and Soil.*—The underlying rock is laterite near the Hashi River, while the hill is formed of basalt and quartzite. The soil is deep in the east becoming very shallow on the upper slopes, where sheet rock often appears on the surface.	(*a*) *Growing stock.*—The growing stock is entirely deciduous. The forests are good, east of the Malegaon-Bidralli foot-path, where large Matti, of which many are attacked by "water blister" Kindal and to a less extent Nana and Jamba are found. West of the above foot-path, on the hill sides the height growth falls off considerably and the forest becomes more open. It contains Teak up to trees of exploitable girth, mixed with Jamba, Matti, Kindal, a few Honni, Womb and many inferior species, the forest being somewhat open in places. (*b*) *Natural regeneration.*—The seedling growth on the slopes is good and many Teak are present. East of the Malgaon foot path, where the forest is denser, Jamba seedlings prevail. (*c*) *Undergrowth.*—A few scattered clumps of Bamboo occur on the more level ground. Grass is found on the slopes and higher up a light growth of Karvi. (*d*) *Grazing.*—Grazing is confined to the vicinity of the Malgaon cultivation.	1 Matti— (*a*) Sound .. 16.4 (*b*) Unsound . 4·8 2 Nana ... 2·0 3 Kindal ... 10·3 4 Jamba ... 17·8 5 Teak ... 1·4 6 Sissum ... 2·2 7 Honni ... ·4 8 Heddi ... ·3 9 Dhamni ... 1·1 10 Apta ... ·4 11 Jambul ... 0·0 12 Womb ... 1·7 13 Kharsing ... ·4 14 Bharnigi ... ... 15 Other species . 40·8		Exploitation from the upper slopes will be costly but probably remunerative on account of the Teak to be exploited.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
53	730·0	*North.*—A nalla coming down from the top of the 1,144 feet hill and running through the Malgaon cultivation and a portion of the ridge line. *East.*—The Malgaon cultivation, the Malgaon-Dongri foot-path and in the south-east a 25 feet blazed line. *South and West.*—Two nallas, one on the south coming down from the 961 feet hill to the east end of the Dongri cultivation, and the other one coming down the south slopes of the Dongri ridge.	(*a*) *Configuration.*—Aspect south-east and north-west. The area lies on the south-east slopes of the Dongri ridge and also comprises the western spur of 1,560 feet hill above Malgaon village. The gradients on both sides of the valley are very steep, rising to 1,324 feet on the Dongri ridge. There is no ground that could be termed flat throughout the area. (*b*) *Rock and Soil.*—The underlying rock in the ravine is laterite, the Dongri hill being of basalt and quartzite, while the south slopes are formed of granites, schists, and what appears to be a rock of olivine character. The soil on both slopes is extremely shallow and covered with loose stones, while the rock often appearing on the surface.	(*a*) *Growing stock.*—The growth is of deciduous character throughout. Generally speaking the forests in this compartment are extremely poor, due to the shallow soil, which is also responsible for the poor height growth. At the summit of the Dongri hill a few scattered Teak occur, of poor growth. The hillside is poorly stocked with stunted Matti, Kindal, Dhamni, Sissum, Jamba, a few Nana and inferior species, which improve in growth towards the valley, though the height growth is nowhere normal. To the south of the Dongri-Malgaon foot-path, on the spur below the 1,560 feet hill, matters improve somewhat on the lower slopes, as the height growth improves and the stocking is fuller, but even here the growth is not 1st class. (*b*) *Natural regeneration.*—The natural regeneration is fair, consisting chiefly of Jamba and Dhamni. (c) *Undergrowth.*—Small Bamboos are very numerous on the slopes, while grags occur in places and in others Karvi, especially on the southern spur. (*d*) *Grazing.*—Practically nil.	1 Matti— (*a*) Sound ... 7·8 (*b*) Unsound . ·9 2 Nana ... 4·2 3 Kindal ... 15·6 4 Jamba ... 28·8 5 Teak ... ... 6 Sissum ... 3·9 7 Honni ... ... 8 Heddi ... ·1 9 Dhamni ... 7·0 10 Apta ... ·3 11 Jambul ... ·2 12 Womb ... ·4 13 Kharsing ... ·3 14 Bharnigi ... ... 15 Other species . 30·5		There are practically no trees in this compartment of any present value.
54	590·0	*North and West.*—The Gangavali River. *South-east.*—The ridge line. *South-west.*—A nalla coming down from the 1,144 feet hill and the Bidralli cultivation, also a small bit of a 25 feet cut-line.	(*a*) *Configuration.*—Aspect north-west. The area lies between the Gangavali River and the crest of the Bidralli ridge. Towards the river the ground slopes gently to the north-west, but rises with steep gradients from the 200 feet contour line to 1,037 feet on the crest of the ridge. The face of the hill side is intersected by innumerable small nallas which run into the main stream. (*b*) *Rock and Soil.*—The underlying rock on the hill is basalt and quartzite. The soil is fair on the middle slopes, becoming somewhat shallow towards the top of the hill and covered with loose stones. Towards the river the soil is hard and unfavourable to tree growth.	(*a*) *Growing stock.*—Between the river and the Malgaon foot-path an area containing poor stunted growth occurs, and though full of Matti, its future is not hopeful. The whole of the slopes are covered with Teak, though few are of exploitable size, as from the stumps it appears the large trees were exploited many years ago. Mixed with the above species are many large Kindal and to a less extent Matti, Heddi, Nana, Jamba, Sissum, Womb, small Kharsing and a fair number of Dhamni, the forests being of better quality on the middle slopes than towards the crest of the hill. (*b*) *Natural regeneration.*—The regeneration is fair to good all over the area. Matti seedlings are found on lower elevations, while many Teak and Nana have established themselves on the middle and upper slopes. The percentage of trees in the pole stage is very low for all species, even of Jamba. (*c*) *Undergrowth.*—Not heavy anywhere. Bamboo clumps occur on the lower ground and patches of Karvi and Chiva bamboo exist on the slopes. (*d*) *Grazing.*—Grazing is confined to the area between the river and the Malgaon foot-path.	1 Matti— (*a*) Sound ... 9·7 (*b*) Unsound... 4·8 2 Nana ... 5·3 3 Kindal ... 14·7 4 Jamba ... 16·3 5 Teak ... 3·8 6 Sissum ... 1·7 7 Honni ... ·6 8 Heddi ... ·6 9 Dhamni ... 5·7 10 Apta ... ·7 11 Jambul ... ... 12 Womb ... ·8 13 Kharing ... ·6 14 Bharnigi ... .. 15 Other species . 34·7		It will be difficult to exploit the slopes owing to the stiff gradient and loose stone.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
55	642·8	*North-west.*—The Gangavali River. *North-east.*—A nalla running down from the 1,144 feet hill, the Bidralli cultivation and a bit of a 25 feet cut-line. *South-east.*—The ridge line. *South-west.*—A nalla.	(*a*) *Configuration.*—Similar to compartment 54. (*b*) *Rock and Soil.*—Similar to compartment 54.	(*a*) *Growing stock.*—With the exception of a small area covered with evergreen forest on the middle slopes, near the north-east boundary, formed by a spring which supplies the Bidralli village with water, the forests are similar to those described in compartment 54, the percentage of inferior species being high.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 16·3 3·1 2·0 11·6 12·7 1·2 1·2 1·0 ·2 1·9 ·3 ·2 ·2 ·1 ... 48·0	Similar remarks apply to this compartment to those made for compartment 54.
56	793·2	*North-east.*—The nallas one on each side of the ridge. *South-east.*—The Romdi Nalla. *West.*—The Gangavali River.	(*a*) *Configuration.*—Aspect north turning to south-east. The area contains the south end of the Bidralli-Dongri ridge. Towards the main river and again along the Romdi Nalla, in the south, the ground is level, soon rising from each side of the spur at an elevation of 75 feet to 1,300 feet, on the crest of the ridge, the gradients each side of the spur being extremely steep and on the south side precipitous. (*b*) *Rock and Soil.*—The underlying rock is laterite in the south, the slopes being formed of basalt and quartzite. The soil in the south though of fair depth is hard, while on the hill side it is shallow, the rock coming to the surface in places.	(*a*) *Growing stock.*—The growing stock is all of deciduous character. The whole of the upper slopes contain Teak, though few exploitable trees are to be found. On the middle and western slopes fair Matti, Kindal and Jamba forest exists, mixed with scattered, Sissum, Honni, Dhamni, Womb, Nana and inferior species. On the upper western slopes and again far down the eastern slopes the forest is open and the growth poor. Along the main river and in the extreme south of the area, on the flatter ground, the growth, though fairly dense, is extremely poor. (*b*) *Natural regeneration.*—Fair seedling growth is found on the lower ground, though the soil is so hard here that its future is doubtful. A fair number of seedling of Teak, Sissum, Jamba, Kindal, etc., are to be seen on the western slopes between the patches of Karvi. (*c*) *Undergrowth.*—Small Bamboos are scattered over the lower lying areas, while large patches of Karvi and Chiva bamboos occur on the slopes. (*d*) *Grazing.*—Grazing is confined to the flat areas only.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 9·7 4·8 2·2 11·6 24·2 2·2 3·1 ·7 ·3 2·2 ·2 ... ·6 ·5 ... 37·7	Exploitation will present no great difficulties as the upper slope contains no large trees and only on the lower slopes is there much to exploit. The poor state of the forest along the river banks is hard to explain, the wood is young no doubt, and subject to grazing and bad treatment but even there the trees do not appear to have a vigorous growth.
57	792·4	*North.*—The Romdi Nalla. *East.*—A 25 feet blazed line. *South.*—The Kumtimali Nalla and a cut line. *West.*—The Gangavali River.	(*a*) *Configuration.*—Aspect west. The western half of the compartment lies on flat to undulating ground near the Gangavali River, while in the east the compartment is formed of the lower slopes and spurs of the Kotigudda Hill. The gradients in the hill portion are moderate to steep and rising from about 100 feet in the plain to 900 feet on the eastern boundary. (*b*) *Rock and Soil.*—The underlying rock in the plain is laterite, while that of the slopes is granite and schists. The soil is shallow both on the flat ground and on the slopes and	(*a*) *Growing stock.*—The growing stock is deciduous, with the exception of small semi-evergreen patches in the upper ravines. The whole of the central portion is extremely poor, forming at present nothing more than exaggerated scrub jungle. Towards the river matters improve, but even here the forest is hardly of normal quality. The slopes contain very fair forest of Nana, Kindal and Jamba with fair patches of Matti, especially on the lower slopes, mixed with the above species are a few Sissum, Womb, Dhamni and a number of large inferior species, such as Karmal, Goting, Kumbia, etc. The deciduous forest here stretches in places far up the slopes, but after crossing the 900 feet contour line it becomes of very inferior quality.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	 16·3 3·4 1·6 13·4 19·4 ... 1·3 ·8 ·4 ·9 ·3 ... ·3 ·2 ... 41·7	Exploitation will present no difficulties. With the exception of portions of the slopes the forest is very backward and little timber is fit for exploitation.

APPFNDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
			covered with loose stones and boulders.	(*b*) *Natural regeneration.*—In the plain some Matti, Kindal and Nana seedlings are to be found and to a less extent on the slopes, where however Jamba regeneration is good. (*c*) *Undergrowth.*—Bamboos are found scattered all over the area, and on the slopes Karvi in moderate quantities and rather locally. (*d*) *Grazing.*—Grazing is carried on all over the plain and especially near Dongri where grazing and packing are responsible in a great measure for the present wretched condition of the forest.			
58	624·4	*North.*—The Kumtimali Nalla and a cut line. *East.*—The Dongri-Kanchankeri foot-path, which is blazed on both sides. *South.*—The Hegarni Nalla. *West.*—The Gangavali River.	(*a*) *Configuration.*—There is no definite aspect in this area, it being an undulating strip of land along the east bank of the Gangavali River. It drains south-west by a small stream called the Kumtimali Nalla, which runs down the centre of the area. (*b*) *Rock and Soil*—The underlying rock is laterite with outcrops of basalt and gneiss. The soil is very shallow, especially in the north, where outcrops of rock are frequent, in the south, round the Donibail Nalla, the soil is somewhat deeper.	(*a*) *Growing stock.*—The whole of the north-east of the compartment contains very poor forest indeed, with an average height of not over 20 feet, broken up by large blanks. The species which constitute thin poor growth are stunted Matti, Kindal, Jamba, Khair, Bor, Char, Hirda, etc. The south and western portions of the area contain forest varying between 1st and 2nd quality. Here Matti, Kindal, Jamba of fair growth exist, mixed sparingly with Nana of no great size, Honni, Dhamni, Womb and inferior species. (*b*) *Natural Regeneration.*—As is usual in such areas the natural regeneration in the poor open forests in the north-east is good, though the prospect of such seedlings is poor; while in the south and west, where better forest exists and the stocking is full, only Jamba and Shade bearing seedlings are to be found. (*c*) *Undergrowth.*—Practically nil in the north-east, while fairly heavy Karvi growth exists elsewhere. Bamboos are scattered all over the area and especially round the Donibail Nalla. (*d*) *Grazing.*—Grazing is confined to the more open north-east portions of the area.	1 Matti— (*a*) Sound ... (*b*) Unsound . 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	13·0 2·2 4·2 15·5 18·1 ... ·9 ·9 ·4 3·1 ·3 ·1 1·6 ·4 ... 39·3	Exploitation should be easy. A strong improvement felling is very needful in the south and west where owing to want of light the natural regeneration is poor. The Karvi will have to be burnt after the seed is formed and before it drops.
59	720·8	*North*—The Kumtimali Nalla. *East.*—A blazed line in the north, the source of the Donibail Nalla in the centre, and the Hegarni cultivation in the south. *South.*—The Hegarni Nalla. *West.*—The Dongri—Kanchankeri foot-path.	(*a*) *Configuration.*—The aspect turns from north to south round the 740 feet hill in the north-east of the compartment, while the south is level ground. The hill in the north-east of the compartment is an outer spur of the main ridge, the gradients round the summit being very steep. (*b*) *Rock and Soil.*—The underlying rock in the plain is chiefly basalt, while the hill is formed of granites and schists. The soil on the slopes is shallow and stony except in the bottom of the ravines, on the level ground the soil is poor and hard.	(*a*) *Growing stock.*—The forests are deciduous all over, and with the exception of the forests on the slopes of a very poor character. In the plain the growth rarely exceeds 30 feet in height and is composed of stunted Matti, Kindal, Jamba, Bor, Char, Khair, etc. On the hill slopes the growth is fairly good, in the ravines to the north of the hill especially so, for here some fair Matti and Kindal are found in small quantities, (*b*) *Natural regeneration.*—The regeneration is very fair all over the area especially in the plain. (*c*) *Undergrowth.*—The undergrowth in the plain is practically nil, On the hill sides dense patches of Karvi growth exist mixed with armed bamboos. (*d*) *Grazing.*—Grazing is carried on all over the plain especially in the vicinity of Hegarni village.	1 Matti— (*a*) Sound ... (*b*) Unsound... 2 Nana ... 3 Kindal ... 4 Jamba ... 5 Teak ... 6 Sissum ... 7 Honni ... 8 Heddi ... 9 Dhamni ... 10 Apta ... 11 Jambul ... 12 Womb ... 13 Kharsing ... 14 Bharnigi ... 15 Other species .	14·4 2·5 ·4 13·2 7·1 ... 0·2 ·9 ·4 ·2 ·1 ·5 ·3 ... ... 59·8	A poor compartment in which little can be done sylviculturally owing to the poor nature of the soil.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forest.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
60	732·8	*North.*—The Hegarni Nalla. *East.*—The Hegarni cultivation and a 25 feet blazed line. *South.*—The northern tributary of the Kanchankeri Nalla. *West.*—The Gangavali river.	(*a*) *Configuration.*—Aspect generally west. The ground in the west is undulating to flat, while in the east it is formed by the lower spur of the 1,713 feet hill, on which the gradients rising to 408 feet are only moderately steep. (*b*) *Rock and Soil.*—The underlying rock on the level ground is laterite, with outcrop of quartz and basalt, while the slopes are of gneiss and granite. The soil is poor in the centre of the area and along the slopes, improving considerably in the west near the Gangavli river.	(*a*) *Growing Stock.*—The growing stock is all over of deciduous character. In the centre of the area and eastwards on the slopes the growth is poor and of second quality, the growth on the slopes being slightly better than in the plain. Here are found many stunted Matti mixed with Kindal, a few Womb, Sissum, patches of Nana and inferior species. Some of the Matti in the pole stage look not improving and may grow to second quality trees. West of the Hegarni foot-path the growth improves towards the river, and fair Matti up to 80 feet in height are to be found and of fair girth. Mixed with this species are Kindal, also well grown, scattered Nana, Jamba, Honni and inferior species of no great size. Jamba is scarce compared with the percentage found in the forests on the slopes. (*b*) *Natural regeneration.*—The seedling growth is good nearly everywhere, the species more commonly represented being Matti, Jamba and Kindal, while Nana and Honni are only seen locally. (*c*) *Undergrowth.*—The Karvi growth in the plain is local, but fairly dense on the slopes in the north-east. Small Bamboos are found in the plain and a small armed Bamboo on the slopes. (*d*) *Grazing.*—Grazing is carried on all over the plain, but is nowhere heavy.	1 Matti— (*a*) Sound ... 17·0 (*b*) Unsound . 4·5 2 Nana ... 1·4 3 Kindal ... 11·0 4 Jamba ... 10·7 5 Teak ... ... 6 Sissun ... 1·7 7 Honni ... 2·1 8 Heddi .. 1·3 9 Dhamni ... ·4 10 Apta ... ... 11 Jambul ... ·2 12 Womb ... ·2 13 Kharsing ... ... 14 Bharnigi .. ... 15 Other species . 49·5		Read note against Compartment 59.
61	656 8	*North.*—A tributary of the Kanchankeri Nalla. *East.*—A 25 feet blazed line. *South and West.*—The Kanchankeri Nalla.	(*a*) *Configuration.*—Aspect west. The extreme west corner of the compartment is on level ground. The rest of the compartment is formed by the lower slopes of the 1,713 feet hill. The gradients on the slopes are gentle to moderately steep, while the side of the hill is cut up by innumerable small nallas draining westward. (*b*) *Rock and Soil.*—The underlying rock in the plain is laterite, while the hill sides are of gneiss and semi-metamorphosed sandstones. The soil is poor in the west and very fair on the slopes in the east of the compartment.	(*a*) *Growing Stock.*—The growing stock is deciduous. In the west rather poor forest exists, similar to that described in Compartments 59 and 60. On the slopes matters improve and very fair Matti, Kindal and Heddi forest exists. Jamba prevails on the upper slopes, while patches of Nana are found on the lower slopes, in which here and there the pole and seedlings stages are well represented. In and along the ravines strips of semi-evergreen forest occur but they are very limited in area. These forests have been formerly much exploited. (*b*) *Natural regeneration.*—The regeneration of Jamba, Kindal and inferior species is good while advanced growth of Nana is promising. Matti seedlings are scarce, probably owing to the full stocking of the wood. (*c*) *Undergrowth.*—Bamboos are plentiful all over the area. Karvi is found in patches but is nowhere really dense. (*d*) *Grazing.*—The grazing round the Kanchankeri footpath is somewhat heavy.	1 Matti— (*a*) Sound ... 14·3 (*b*) Unsound ... 4·8 2 Nana ... 2·6 3 Kindal ... 13·4 4 Jamba ... 15·0 5 Teak ... ... 6 Sissum ... .8 7 Honni ... ·6 8 Heddi ... 1.2 9 Dhamni ... ·7 10 Apta ... ·1 11 Jambul ... ·4 12 Womb ... ·9 13 Kharsing ... ·1 14 Bharnigi ... ... 15 Other species . 45·1		No difficulties will be found in exploting this area. Much can be done in freeing the advanced growth on the slopes.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
62	634·4	*North-east.*—The Kanchankeri Nalla. *South-east.*—A cut line and a nalla. *South-west.*—The Chenghar Nalla. *North-west.*—The Gangavali River.	(*a*) *Configuration.*—All aspects are found here. The compartment contains three low hills, all of about the same height, the highest being 383 feet above M. S L. The surface of the ground is therefore broken, irregular and undulating and well drained. *Rock and Soil.*—The underlying rock is generally laterite though veins of quartz and basalt occur on the hillocks. The soil varies between 1st and 2nd quality.	(*a*) *Growing Stock.*—The growing stock is deciduous, good on the low ground and poor on the slopes. The height growth is not generally speaking normal, except perhaps in the low lying areas, and the stocking is nowhere full. All the good Matti, Nana, Jamba and Heddi have been exploited in passed years, leaving a good number of large faulty Matti. Kindal is represented by many large trees, Womb, Dhamni and Sissum are fairly well represented, while Karmal and Sagadi are very common. (*b*) *Natural regeneration.*—A good deal of Matti regeneration is found in the openings. Kindal, Womb and Sissum are scattered here and there and numbers of Jamba everywhere. Nana is most noticeable in the pole stages. (*c*) *Undergrowth.*—The whole area is covered with scattered clumps of Bamboos, while a moderately heavy growth of Karvi is found everywhere. (*d*) *Grazing.*—A little grazing takes place in the north-east of the compartment near Kanchankeri.	1 Matti— (*a*) Sound ... 3·9 (*b*) Unsound... 1·8 2 Nana ... 8·7 3 Kindal ... 9·9 4 Jamba ... 26·2 5 Teak ... ... 6 Sissum ... 1·9 7 Honni ... ... 8 Heddi .. ·3 9 Dhamni ... 5·8 10 Apta ... ·4 11 Jambul ... ·2 12 Womb ... 1·9 13 Kharsing ... ·3 14 Bharnigi ... ·1 15 Other species . 38·6		An area which essentially requires rest after heavy exploitation in the past.
63	542·4	*North.*—The Kanchankeri Nalla, cultivation, a cut line and a small Nalla. *East.*—A blazed line and the Armainbail cultivation. *South.*—The Kuntagani road. *West.*—The Chandgar Nalla.	(*a*) *Configuration.*—The area contains the Kuntagani Spur rising with moderate to steep gradients to 745 feet situated rather in the north centre of the compartment. To the south of the hill is the Kuntagani cultivation on lower ground. (*b*) *Rock and Soil.*—The underlying rock consists of schists and quartzites, the soil being fair all over the area.	(*a*) *Growing Stock.*—Deciduous everywhere, except on the east boundary where it approaches evergreen in places. On the north and west slopes of the spur, very fair deciduous forest occur, containing a few Matti, all the large trees of which have been exploited, and a fair number of exploitable Kindal and Nana, with many Jamba and inferior species. The southern slopes contain similar forest to that described above, but of inferior quality. In the plain, round to Local Fund road and Kuntagani River, scrub jungle prevails, much split up by old cultivated areas, the present growth being the result of former clearings. (*b*) *Natural regeneration.*—Regeneration of Matti, Kindal and Jamba is good in the south, while many shrubs also prevail. On the northern slopes only scattered seedlings are to be found in the more open places. (*c*) *Undergrowth.*—A moderately heavy growth of Karvi on the slopes and Bamboo clumps scattered everywhere. In the plain many thorny bushes and creepers. (*d*) *Grazing.*—All over the flat portion in the south and south-west.	1 Matti— (*a*) Sound ... 3·0 (*b*) Unsound... 1·5 2 Nana ... 8.9 3 Kindal ... 11·9 4 Jamba ... 30·2 5 Teak ... ... 6 Sissum ... 1·0 7 Honni ... ... 8 Heddi ... ·4 9 Dhamni ... 5·3 10 Apta ... ·2 11 Jambul ... ·2 12 Womb ... ·6 13 Kharsing ... ·1 14 Bharnigi ... ... 15 Other species... 36·7		This area wants rest, it having been heavily exploited in the past, and round Kuntagani the forests have been badly treated. The old cultivation might be dibbled up with advantage.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
64	641·2	*North*—The Kuntagani Road. *East.*—A blazed line and a nalla. *South.*—The Asnir Nalla. *West.*—The Chandgar Road.	(*a*) *Configuration.*—Aspect west. The eastern portion of the area contains the lower slopes of the Kalmani Hill, the gradients in places being very steep. All west of the Nirkoli and Asnir villages is flat, slightly undulating ground, and is drained by the Chandgar Nalla and its two large tributaries. (*b*) *Rock and Soil.*—In the plain the underlying rock is laterite, while the eastern slopes are composed of schists, shales and basalt. The soil is fertile and deep in the plain and is fairly so on the slopes.	(*a*) *Growing Stock.*—The growing stock is of three types. On the slopes good deciduous forest is found, containing large Kindal and Nana scattered all over the area, together with a few Matti, Jamba, Dhamni, Kossum, Jambul, etc., and many Bamboos. On the upper slopes Jamba becomes very plentiful while in the bottom of the small ravines the growth approaches evergreen forest. Westward of the Nirkoli-Asnir footpath as far as the river, and especially towards Asnir cultivation the growth is little more than scrub jungle. Between the river and the Chandgar road is a semi-evergreen forest, containing many Bharnigi, Bobbi, Mango, Hawga, etc., and here and there scattered large Nana, Kindal and a few Matti. (*b*) *Natural regeneration.*—On the slopes fair regeneration is found of all species. Seedlings of Matti, Kindal, Nana and Jamba with many inferior species are plentiful in the central portion, where the forest is open, while in the semi-evergreen tract, the stocking being full, there are only seedlings of such species as Hawga, Bhirendi, etc. (*c*) *Undergrowth.*—Many Bamboos are scattered all over the slopes with moderate to heavy Karvi growth. In the centre of the compartment there is little undergrowth except thorny shrubs and creepers, while in the west, the undergrowth is of laurels and other evergreen shrubs. (*d*) *Grazing.*—Grazing goes on all over the centre of the compartment.	1 Matti— (*a*) Sound ... 7·2 (*b*) Unsound ... ·7 2 Nana ... 6·4 3 Kindal ... 7·5 4 Jamba ... 7·2 5 Teak ... ... 6 Sissum ... ·4 7 Honni ... ·2 8 Heddi ... ·5 9 Dhamni ... 2·8 10 Apta ... 1·8 11 Jambul ... 1·1 12 Womb ... ·3 13 Kharsing ... ... 14 Bharnigi ... ·7 15 Other species . 64·2		Exploitation will be easy. Everything should be done in the semi-evergreen portion to favour deciduous species, even if of inferior kinds.
65	729·2	*North.*—The Chandgar Nalla. *East.*—A blazed line in the north and the Mabge Nalla in the south. *South.*—A blazed line. *West.*—The Chandgar Nalla.	(*a*) *Configuration.*—For the purpose of description the area may be divided into two portions. In the north, with a western aspect, the compartment covers the Chandgar spur, the gradients of which are gentle in the west and moderately so in the east. The southern portion consists of a 582 feet hill, dividing the Mabge and Angdibail villages and nállas. (*b*) *Rock and Soil.*—The underlying rock in the plain is laterite, that of the slopes and hill in the south is crystalline, granite and schists. The soil is good on the level ground and rather shallow on the slopes.	(*a*) *Growing Stock.*—The slopes in the north, with the exception of a patch of evergreen in the north-east corner of the compartment, and the hill in the south near Mabge village contain fairly good deciduous forests in which Nana and Kindal are plentiful and Matti and Jamba rather scarce, while the number of inferior species is very great. All over the plain are patches of evergreen and semi-evergreen forest, with old cultivated areas cutting up the forest everywhere. In these semi-evergreen forests and standing over it are many very fair young Matti and other deciduous species, giving one the idea that the evergreen is enchroaching on the deciduous, but that the transformation is incomplete. In the extreme the south of the compartment is a small patch of pure evergreen forest of small extent. (*b*) *Natural regeneration.*—The seedling growth on the slopes and hill in the south is fair. Except on the edge of the old cultivations in the plain seedling growth is poor, owing to the dense evergreen growth of shrubs.	1 Matti— (*a*) Sound ... 7·2 (*b*) Unsound . 5·1 2 Nana ... 5·5 3 Kindal ... 6·9 4 Jamba ... 4·3 5 Teak ... ... 6 Sissum ... ·2 7 Honni ... ... 8 Heddi ... ·9 9 Dhamni ... 1·1 10 Apta ... ·5 11 Jambul ... ·5 12 Womb ... ·2 13 Kharsing ... ... 14 Bharnigi ... ·5 15 Other species... 67·1		A very backward compartment. To try to do much in the plain with the excessive grazing would be waste of time.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
				(c) *Undergrowth.*—Karvi and Bamboos are found on the slopes, and evergreen shrubs in the plain. (d) *Grazing.*—Grazing which is fairly heavy, is carried on all over the flat ground between Chandgar and Mabge villages.			
66	959·2	*North.*—A nalla starting in the north-east corner, 2 furlongs north of the junction of the Kuntagani and Chandgar roads; and a cut line to the west of the Boroli-Karikal footpath. *East.*—The Chandgar road, and part of the Chandgar nalla. *West.*—A cut line to the top of the 1,259 feet hill, from the spur of the 900 feet hill.	(a) *Configuration.*—Aspect generally south turning to east. The area contains the eastern spur of the 1,259 feet hill above Hillurbail, and the continuation of the spur which forms a 451 feet hill in the east of the compartment. In the west, above Boroli village and directly below the crest of the hill, the gradients are very steep and in places precipitous, while in the centre of the area and westwards the ground is much broken up by Nállas, with gentle gradients, the extreme south of the area being practically flat. (b) *Rock and soil.*—The underlying rock is laterite in the east, the slopes and hill being of metamorphosed rock, olivines and basalts. The soil is fair to good in the centre and eastern portion of the area and poor on the upper slopes, where flag rock appears in place on the surface.	(a) *Growing stock.*—All types of forest are found in this compartment, varying from pure deciduous to true evergreen, the stocking being evereywhere full. On the flat ground near the Chandgar Dharmashala and round the Boroli river nearly true evergreen forest is found, with only a few large deciduous species scattered here and there. The north-east of the compartment contains deciduous forest with good Nana, Kindal and some Matti. Between the 451 feet and 507 feet hills is good deciduous forest overhead, while many evergreen shrubs cover the ground. Here large Nana, Kindal, Bharnigi, Jamba and some Matti are found, though the younger classes are somewhat poorly represented. The Kindal are here more unsound than is usually the case. In the west and on the steep side slopes towards the top of hill, much Jamba growth is present intermixed with a few fair Nana and Kindal. (b) *Natural regeneration.*—The seedling growth of deciduous species is not good except locally in the true deciduous forests, where more light is let in. Seedlings of evergreen species are well represented in places, and the general tendency is to produce evergreen forests in the future. (c) *Undergrowth.*—Large Bamboos occur locally on the slopes, and here and there patches of Karvi are found. Elsewhere evergreen shrubs appear usurping much of the soil. (d) *Grazing.*—Practically nil except in the extreme south of the compartment.	1 Matti— (a) Sound ... 3·0 (b) Unsound ... ·9 2 Nana ... 6·5 3 Kindal ... 8·7 4 Jamba ... 21·7 5 Teak ... ... 6 Sissum ... ·9 7 Honni ... ... 8 Heddi ... ·2 9 Dhamni ... ·7 10 Apta .. ·0 11 Jambul .. ·1 12 Womb ... ·3 13 Kharsing .. ·1 14 Bharnigi ... 1·5 15 Other species... 55·4		The tendency of this forest is to become evergreen, so that every effort should be made to favour the deciduous species of every kind by careful improvement fellings.
67	1210·0	*North.*—The Chandgar and Holemaki Nallas. *East.*—The Chandgar Nalla. *South.*—A nalla described as the north boundary of Compartment 66, and a cut line. *West.*—The Holemaki Nalla and a cut line to the top of the 1,259 feet hill.	(a) *Configuration.*—The aspect generally north-east. This compartment contains the three north-easterly spurs of the 1,259 feet hill, between which the Harsnalli and Holemaki Nállas find their way down to the Chandgar Nalla. The slopes of three spurs are extremely steep and much cut into by bye-nállas. East of the Chandgar road the ground is undulating.	(a) *Growing stock.*—The eastern half of the compartment contains fair deciduous forest of Nana, Kindal, Matti, Womb and some Jamba, Sisum being scarce. A good many of the large Matti have been exploited from this area in former times. All west of the Harsnalli cultivation, on the upper slopes, the forest, though well stocked, is of 2nd quality containing much Jamba, Jambul, Kharsing, many inferior species and only scattered Nana and Kindal, and no Matti. Here also patches of evergreen occur, an especially large area of this type of forest occurring south of Holemaki cultivation. Just above Harsnalli a bare area occurs, probably an old Kumri cultivation.	1 Mati— (a) Sound ... 5·1 (b) Unsound... 2·3 2 Nana ... 4·3 3 Kindal ... 7·8 4 Jamba ... 17·7 5 Teak ... ... 6 Sissum ... ·3 7 Honni ... ·1 8 Hsddi ... ·4 9 Dhamni ... ·7 10 Apta .. ·2 11 Jambul ... ·7 12 Womb ... 1·4 13 Kharsing ... ·1 14 Bharnigi ... 1·4 15 Other species... 57·5		*See* note against Compartment 66.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
			(*b*) *Rock and Soil.*—The underlying rock is laterite in the east and metamorphosed rock and basalt on the hill side. The soil is fair in the eastern half of the area and poor on the upper slopes.	(*b*) *Natural regeneration.*—The natural regeneration is fair in the east and round the old cultivations, while on the upper slopes Jamba seedlings abound. (*c*) *Undergrowth.*—Karvi and Bamboo are found in the east and evergreen shrubs and a few canes occur on the upper slopes. (*d*) *Grazing.*—Grazing is confined to round the Harsnalli cultivation, and below the road.			
68	644·0	*North.*—A cut line, Tagse cultivation and a cut line in the north-east. *East.*—The Holemaki Nalla and a cut line to the top of the 1,259 feet hill and over the crest to the boundary. *South.*—A small nalla. *West.*—The Bail Nalla and a cut line. *North-west.*—Pattanpur road.	(*a*) *Configuration.*—Aspect west and north east. The compartment comprises the north-west spur of the 1,259 feet hill rising with steep gradients from 100 feet in the plain to 1,259 feet at the summit of the hill; the slopes towards the ridge being nearly precipitous. The sides of the hill are cut up by innumerable small nallas. (*b*) *Rock and Soil.*—The underlying rock is basalt and metamorphosed schists. The soil is poor everywhere even at the bottom of the slopes.	(*a*) *Growing stock.*—These forests are generally of poor quality, the growth not being often over 40 feet in height. The whole of the western slopes contain poor deciduous forest where Jamba, Kossum, and inferior species compose most of the growing stock. Towards the Hillurbail Nalla, on the lower slope, a few fair Nana and Kindal are to be found, while on the upper slopes a small patch of Teak occurs. Kumri cultivation must have been common on this side of the hill in former times. On the north-eastern slopes the forest contains much Jamba and a good deal of evergreen growth. In the extreme south of the compartment, on the ridge, there occurs a patch of true evergreen forest. (*b*) *Natural regeneration.*—Scattered regeneration of Nana, Kindal, Kossum, etc., occurs on the western slopes, while Jamba seedlings are found everywhere. (*c*) *Undergrowth.*—Karvi is found on the lower slopes, Bamboos on the middle slopes, and evergreen shrubs and canes on the west of the ridge and on the eastern aspect. (*d*) *Grazing.*—Grazing is confined to the vicinity of the Hillurbail cultivation.	1 Matti— (*a*) Sound ... 1·8 (*b*) Unsound... ·5 2 Nana ... 5·5 3 Kindal .. 12·8 4 Jamba ... 28·2 5 Teak ... ·3 6 Sissum ... ·3 7 Honni ... ·1 8 Heddi .. ... 9 Dhamni ... 2·5 10 Apta ... ·5 11 Jambul ... 1·4 12 Womb ... ·2 13 Kharsing ... ... 14 Bharnigri .. ·3 15 Other species . 45·6	A poor area with little to exploit in it.
69	794·4	*North.*—The Gangavali River. *East.*—The Chandgad and Holemaki Nallas. *South.*—A cut line and the Tagse cultivation. *West.*—The Pattanpur Road.	(*a*) *Configuration.*—Aspect north.—The compartment comprises in the north the undulating ground running down to the Gangavali river, and in the south the lower portion of the northern spur of the Hillurbail hill up to the 460 feet contour line. The gradients on this spur are moderately steep. (*b*) *Rock and Soil.*—To the north of the road the underlying rock is laterite, while the spur is formed of metamorphosed rock and schists. The soil is deep in the north and fairly so in the south on the slopes of the hill.	(*a*) *Growing stock.*—The northern portion of the area contains deciduous forest, while in the south, on the spur, evergreen growth is found. To the north of the road, average deciduous forest occurs in which not many large trees are found, most of them having been exploited in the past; the crop here contains a few Matti, Nana, Kindal, Sissum, Dhamni, Womb and a fair number of inferior species; of the above species only Kindal is represented by exploitable trees. The lower slopes of the hill are covered with deciduous forest containing fair Kindal, Matti and Nana, mixed with small Sissum, Jamba, Heddi, Dhamni, Apta, Womb, Kharsing and a large number of inferior species. The upper slopes contain nearly all evergreen forest with signs of former cultivation everywhere.	1 Matti— (*a*) Sound ... 4·4 (*b*) Unsound... 1·2 2 Nana ... 6·2 3 Kindal .. 11·1 4 Jamba ... 11·1 5 Teak ... ... 6 Sissum ... ·5 7 Honni ... ... 8 Heddi ... 2·9 9 Dhamni ... 2·0 10 Apta ... 1·2 11 Jambul ... ·2 12 Womb ... ·9 13 Kharsing ... 1·1 14 Bharnigi ... ·6 15 Other species . 57·6	There is little to exploit at present from this compartment owing to the heavy felings in the past and to the heavy calls of permit holder on the forests.

APPENDIX III—*continued.*

Compartment No.	Area.	Boundaries.	Configuration, rock and soil.	General character of Forests.	Distribution of growing stock.	Percentage.	Remarks.
1	2	3	4	5	6	7	8
				(*b*) *Natural regeneration.*—Natural regeneration is rather poor in this area, probably due to the heavy growth of Karvi and evergreen shrubs. (*c*) *Undergrowth.*—Heavy Karvi and even evergreen shrubs occur nearly everywhere. Bamboos are found north of the road and only sparingly so on the lower slopes, while on the spur practically none occur. (*d*) *Grazing.*—Grazing is confined to near the river, and even here is at no times heavy.			
70	659·2	*North.*—The Gangavali River. *East and south.*—The Pattanpur Road. *West.*—The Yekeguli Road.	(*a*) *Configuration.*—The compartment contains undulating ground, the highest point of which is 227 feet in the west centre of the area. The whole area being along the banks of the Gangvali is drained by small nallas direct into that river. (*b*) *Rock and Soil.*—The underlying rock is laterite and granite. On the hillocks, the soil is everywhere good.	(*a*) *Growing stock.*—The growing stock is a mixture of deciduous and evergreen forest; on the small hillocks deciduous forest is found, containing Kindal, Matti and Nana locally, with many inferior species, nearly all the large trees have been exploited from this area. On the low-lying ground, especially in the south centre of the compartment, evergreen forest occurs, where Kossum Bharnigi, Mango and Bhirendi make up much of the growing stock. All along the road, in the south, the forest is of poor quality; the stocking is however, complete. (*b*) *Natural regeneration.*—The seedling growth is fair and in places good, especially of Jamba and Kindal, while Nana advanced growth and Matti seedlings are found here and there only. (*c*) *Undergrowth.*—Many Bamboos of poor quality together with a light crop of Karvi are found in the deciduous portions, while evergreen shrubs cover the ground elsewhere. Creepers abound in many places. (*d*) *Grazing.*—Grazing is carried on all over the more open portions of the compartment.	1 Matti— (*a*) Sound ... 7·2 (*b*) Unsound... 2·7 2 Nana ... 10·5 3 Kindal ... 13·9 4 Jamba ... 11·5 5 Teak ... ... 6 Sissum ... ... 7 Honni ... ·2 8 Heddi ... ·9 9 Dhamni ... 3·7 10 Apta ... ·2 11 Jambul ... ·3 12 Womle ... ·7 13 Kharsing ... ... 14 Bharnigi ... 1·2 15 Other species... 47·0		The main requirements of these forests are rest from over-fellings. Creeper cutting is necessary everywhere.

R. S. PEARSON,
Divisional Forest Officer,
Working Plans, S. C.

Name of Village.	Compartment Number.	Compartment area in acres.	Test plot area in acres.	Tr			
				7"—9"	10"—12"	13"—15"	16"–
1	2	3	4	5	6	7	8
da and Mavinmani ...	1	426·4	48·15	205	136	90	
do. ...	2	655·2	59·7	211	111	96	
adda	3	276·8	49·2	15	14	13	
and Mavinmani ...	4	674·4	62·1	97	62	50	
dda	5	382·8	58·5	28	35	41	
... ...	6	554·8	66·0	14	8	18	
and Mavinmani ...	7	674·8	55·8	43	58	66	
do. ...	8	620·0	73·8	140	136	135	
Mavinmani and Sunksal.	9	618·0	58·2	109	88	104	
do. do. ...	10	516·4	53·1	31	28	39	
ni	11	480·8	44·1	294	150	58	
and Sunksal ...	12	618·0	59·7	84	52	33	
do. ...	13	893·6	94·5	121	72	73	
... ...	14	344·4	36·3	13	15	24	
... ...	15	424·8	47·7	56	31	36	
... ...	16	524·4	51·0	35	46	61	
and Kalinhakal ...	17	429·2	43·8	42	49	40	
al	18	719·6	58·2	42	32	36	
dda	19	737·2	38·6	...	8	25	
... ...	20	729·2	76·2	13	13	24	
... ...	21	759·0	66·6	46	49	45	
... ...	22	633·2	75·6	245	210	174	
... ...	23	736·4	68·4	35	34	44	
... ...	24	730·4	72·0	148	150	145	
nd Katinhakal ...	25	585·6	60·9	167	114	73	
and Hebnl ...	26	798·0	71·1	61	50	36	
nd Kavlalli... ...	27	467·2	55·5	118	75	63	
do. ...	28	577 2	63·3	48	32	21	
... ...	29	566·4	52·2	12	3	13	
... ...	30	614·8	64·2	197	79	53	
... ...	31	392·0	52·2	74	37	40	
... ...	32	765·6	73·8	32	12	19	
... ...	33	750·8	57·9	36	33	51	
... ...	34	566·8	63·6	137	100	76	
da and Agsur ...	35	578·2	49·8	103	53	37	
and Kavlalli ...	36	612·4	69·3	151	146	93	
and Marugadda ..	37	500·0	56·4	52	41	18	
Kavlalli and Marugadda.	38	585·6	49·5	43	43	36	
	39	910·4	76·5	39	43	42	
	40	666·0	63·0	31	41	42	
Total ...		24,096·8					
... ...	41	442·8	32·25	30	18	16	
and Heggar... ...	42	610 0	50·10	38	19	27	
... ...	43	706·0	67·20	48	64	44	
ud Kalleshwar ...	44	562·8	66·45	111	98	105	
ar and Halvalli ...	45	775·0	82·80	67	32	11	
ar	46	553·2	61·95	63	38	50	
ar and Halvalli ...	47	740·0	72·90	7	10	6	
... .	48	605·2	59·70	10	5	2	
Kalleshwar and Muski...	49	798·0	84·15	168	59	64	
and Kammani ...	50	667·6	59·10	74	48	62	
... ...	51	694·8	82·20	383	92	53	
and Dongri... ...	52	657·6	51·3	46	90	107	
do.	53	730·0	42·3	36	36	49	
do.	54	590·0	60·3	68	67	70	
... ...	55	642·8	64·2	186	160	141	
... ...	56	793·2	66·0	46	65	73	
... .	57	792·4	77·1	251	213	162	
... ...	58	624·4	68·1	192	150	99	
... ...	59	720·8	68·7	242	184	113	
and Kuntgani ...	60	732·8	70·8	193	179	161	
do.	61	656·8	63·3	119	125	123	
i and Hillur... ...	62	634·4	72·0	36	30	28	
i	63	542·4	63·0	48	23	15	
... ...	64	641·2	78·3	226	62	41	
i and Manigadda ...	65	729·2	73·2	79	77	82	
i	66	959·2	97·5	65	31	50	
and Hillur	67	1,210·0	107·1	44	47	95	
do.	68	644·0	58·5	23	33	23	
... ...	69	794·4	86·4	111	41	26	
... .	70	659·2	69·9	172	90	73	

XXIV.								
Sound.								
1,815	1,204	797	602	301	248	97	62	5,126
2,316	1,218	1,054	647	351	154	143	66	5,949
84	79	73	45	34	22	28	22	387
1,053	673	543	478	347	304	217	174	3,789
183	229	268	242	268	124	105	118	1,537
118	67	151	93	134	126	126	252	1,067
520	701	798	605	435	314	133	169	3,675
1,176	1,143	1,134	664	428	218	126	118	5,007
1,157	934	1,104	616	361	223	159	106	4,660
302	272	379	311	185	146	117	68	1,780
3,205	1,635	632	305	76	55	...	33	5,941
869	538	342	248	269	135	104	52	2 557
1,144	681	690	492	416	151	95	57	3,726
123	142	228	152	171	142	114	190	1,262
499	276	321	392	303	169	169	178	2,307
360	473	627	596	319	154	185	257	2,971
412	480	392	294	304	176	167	235	2,460
519	396	445	358	321	396	223	346	3,004
...	153	478	382	650	669	314	408	3,054
124	124	239	182	258	239	153	249	1,559
524	558	513	638	658	445	160	319	3,715
2,052	1,759	1,457	737	327	209	69	59	6,659
377	366	473	452	377	301	226	194	2,766
1,501	1,522	1,471	1,177	801	436	325	193	7,426
1,606	1,096	702	615	404	336	202	221	5,182
686	561	401	494	258	123	67	168	2,760
993	631	530	387	227	152	51	93	3,064
438	292	191	165	109	64	73	46	1,368
130	32	141	87	87	65	22	98	662
1,886	756	608	249	153	86	29	38	3,705
556	278	300	135	37	60	30	38	1,434
332	124	197	135	52	...	...	21	861
467	428	661	635	467	428	272	311	3,669
1,221	891	677	232	89	71	45	71	3,297
1,196	615	430	221	186	81	23	81	2,833
1,334	1,290	822	362	239	53	62	141	4,303
461	363	159	98	53	27	18	106	1,285
509	608	426	296	237	130	106	166	2,378
464	512	500	595	393	285	71	310	3,130
328	433	444	529	349	264	148	264	2,759
XXV.								
412	247	220	151	179	82	...	...	1,261
463	231	329	255	292	134	61	85	1,850
504	672	462	536	420	294	95	221	3,204
940	830	889	838	661	381	212	144	4,895
627	239	103	168	94	28	75	47	1,441
563	339	446	277	179	98	107	89	2,098
71	102	61	51	10	10	20	20	345
101	51	20	30	81	61	10	41	395
1,593	560	607	597	597	559	427	427	5,367
836	642	700	621	407	282	271	339	3,998
3,237	778	448	566	380	414	245	355	6,423
590	1,153	1,371	1,269	653	603	295	308	6,242
621	621	846	570	293	276	86	52	3,365
665	655	685	480	156	391	59	88	3,179
1,862	1,602	1,412	851	320	290	180	130	6,647
553	781	877	625	505	337	180	312	4,170
2,579	2,189	1,664	997	709	329	134	103	8,704
1,760	1,375	908	632	367	284	165	110	5,601
2,639	1,930	1,185	766	315	199	73	32	7,039
1,997	1,853	1,666	1,025	714	311	176	155	7,897
1,235	1,297	1,276	861	519	228	83	73	5,572
317	264	247	238	158	185	44	35	1,488
413	198	129	129	103	17	9	26	1,024
1,851	508	336	147	106	65	57	33	3,103
787	767	817	667	388	219	159	90	3,894
640	305	492	354	236	168	118	127	2,440
497	531	1,073	949	847	429	181	219	4,756
310	366	255	78	66	...	11	...	1,086
1,021	377	239	156	73	55	28	64	2,013
1,622	849	688	434	141	113	123	56	4,026
64,245	46,705	42,143	31,251	21,303	14,623	8,448	9,909	2,38,627

								Block *Matti*
1	3	7	8	6	3	3	5	36
3	7	8	7	11	9	6	23	74
3	5	3	3	4	4	2	6	30
...	2	3	5	8	8	17	16	59
2	2	4	6	12	14	9	21	70
...	...	2	6	5	12	8	33	66
...	4	6	7	5	6	9	14	51
8	17	26	32	18	20	11	20	152
...	7	20	21	15	15	8	12	98
...	1	...	4	7	3	8	11	34
1	4	3	3	3	3	3	4	24
2	2	5	9	5	4	3	...	30
2	15	25	20	16	13	6	9	106
...	3	12	12	10	11	11	21	80
1	1	3	7	8	22	8	22	72
...	10	16	23	29	20	17	22	137
3	...	11	13	20	24	17	30	118
1	...	...	1	2	...	...	8	12
Taken as	sound fr	om Arbai	l Plan.			14	27	41
1	13	16	37	25	39	33	36	200
...	...	2	5	7	6	6	26	52
1	1	6	9	10	10	11	9	57
...	3	17	27	19	16	9	15	106
2	1	...	...	...	1	...	1	5
4	18	20	32	34	33	24	53	213
2	3	9	7	10	11	11	20	73
6	7	10	15	26	21	8	15	108
...	3	5	10	13	8	6	24	69
1	2	3	6	9	8	5	19	53
...	6	8	13	16	10	4	9	66
2	3	13	10	15	10	10	6	69
...	1	3	2	3	2	3	14	28
2	5	12	17	12	26	20	46	140
1	8	19	21	17	17	8	15	106
1	1	7	13	15	12	18	9	76
...	2	4	9	8	13	13	24	73
2	6	6	4	4	5	6	13	46
...	6	9	18	16	21	15	30	115
...	3	8	12	16	22	8	38	107
...	3	5	10	21	33	11	24	107

								Block
1	4	2	5	5	5	3	...	25
...	...	2	3	9	9	7	16	46
5	8	11	11	19	15	24	47	140
6	9	15	27	26	25	25	25	158
2	2	1	3	3	9	4	9	33
5	14	17	17	22	16	13	12	116
1	...	...	1	...	2	2	8	14
1	1	1	1	7	6	7	17	41
6	7	17	28	46	45	45	39	233
1	2	3	12	11	14	8	13	64
4	7	6	17	27	40	30	42	173
5	7	25	30	19	21	13	21	141
...	1	5	2	5	4	1	4	22
6	23	22	31	23	21	14	23	163
19	13	22	22	19	9	9	15	123
11	13	28	18	22	17	34	27	170
5	17	28	44	26	19	13	23	175
3	6	16	11	24	13	15	14	102
11	23	28	16	19	7	5	5	114
12	35	32	37	35	20	20	13	204
12	26	29	40	35	19	10	11	182
2	2	8	10	9	13	12	20	76
8	7	6	13	2	8	8	6	58
2	2	7	8	5	8	4	1	37
29	51	43	39	41	39	17	20	279
6	3	12	8	12	9	8	16	74
8	15	29	29	29	27	25	29	191
2	...	2	8	3	4	3	8	30
2	4	3	4	7	5	11	24	60
4	12	17	16	28	21	23	37	158
231	487	773	975	1,018	985	802	1,295	6,566

XXIV.								
Unsound.								
9	26	62	71	53	27	27	44	319
33	77	88	77	120	99	66	252	812
17	28	17	17	22	22	11	34	168
...	22	33	54	87	87	184	174	641
13	13	26	39	79	92	59	137	458
...	...	17	50	42	101	67	278	555
...	48	73	85	60	73	109	170	618
67	143	218	269	151	168	92	168	1,276
...	74	212	223	159	159	85	128	1,040
...	10	...	39	68	29	78	107	331
11	44	33	33	33	33	33	44	264
21	21	52	93	52	41	31	...	311
19	142	236	189	151	123	57	85	1,002
...	28	114	114	95	104	104	199	758
9	9	27	62	71	196	71	196	641
...	103	165	236	298	206	175	226	1,409
29	...	108	127	196	235	167	294	1,156
12	...	...	12	25	...	...	99	148
Taken as	sound fr	om Arbai	l Plan.			265	99	148
10	124	153	354	239	373	316	344	1,913
...	...	23	57	80	68	68	296	592
8	8	50	75	84	84	92	75	476
...	32	183	291	205	172	97	161	1,141
20	10	...	...	...	10	...	10	50
38	125	192	308	327	317	231	510	2,048
22	34	101	79	112	123	123	225	819
51	59	84	126	219	177	67	126	909
...	27	46	91	118	73	55	219	629
11	22	32	65	98	87	54	206	575
...	57	77	125	153	96	38	86	632
15	22	98	75	113	75	75	45	518
...	10	31	21	31	21	31	145	290
26	65	156	219	156	337	259	597	1,815
9	71	169	187	152	152	71	134	945
12	12	81	151	174	139	209	104	882
...	18	35	79	71	115	115	212	645
18	53	53	36	35	44	53	115	407
...	71	106	213	189	248	177	355	1,359
...	36	95	143	190	262	95	452	1,273
...	32	53	106	222	349	116	254	1,132
XXV.								
14	55	27	68	69	69	41	...	343
...	...	24	36	110	110	85	195	560
52	84	116	116	199	158	252	494	1,471
51	76	127	228	220	212	212	212	1,338
19	19	9	28	28	84	37	84	308
45	125	152	152	196	143	116	107	1,036
10	...	...	10	...	21	10	81	142
10	10	10	10	71	61	71	172	415
57	66	161	265	436	427	427	370	2,209
11	23	34	136	124	158	90	147	723
34	59	51	143	228	338	254	355	1,462
64	90	320	385	243	269	167	269	1,807
...	17	86	35	86	69	17	69	379
59	225	215	303	225	205	137	225	1,594
190	130	220	220	190	90	90	150	1,280
132	156	337	216	265	204	409	324	2,043
51	175	288	452	267	195	134	236	1,798
27	55	147	101	220	119	138	128	935
116	241	294	168	200	73	52	52	1,195
124	363	331	383	362	207	207	134	2,111
124	270	301	415	363	197	104	114	1,888
18	18	70	88	79	115	106	176	670
69	60	51	112	17	69	69	52	499
16	16	57	66	41	66	33	8	303
289	508	428	389	408	389	169	199	2,779
59	29	118	79	118	89	79	157	728
90	169	328	328	328	305	282	328	2,158
22	...	22	89	33	44	33	89	332
18	37	27	37	64	46	101	221	551
38	113	160	151	264	198	217	349	1,490
2,289	4,865	7,810	9,800	10,184	9,847	8,172	13,318	66,285

								Block Na
12	10	12	12	6	10	3	2	67
22	28	13	13	10	3	6	3	98
49	29	26	35	23	25	20	38	245
27	16	10	11	7	6	9	4	90
28	12	6	9	9	9	5	3	81
81	29	11	14	18	19	13	33	218
34	24	18	14	7	10	2	3	112
23	12	14	14	9	11	4	4	91
31	15	10	4	8	2	1	4	75
11	15	13	20	14	12	12	9	106
6	9	7	6	1	1	...	4	34
26	35	23	18	16	3	8	...	129
89	49	48	46	19	19	6	16	292
38	35	23	21	14	21	9	9	170
44	71	39	34	22	20	17	27	274
28	18	21	9	7	6	4	5	98
28	31	16	15	11	4	5	6	116
113	70	69	35	20	12	12	17	348
32	9	15	8	11	13	12	15	115
93	52	25	24	22	17	7	16	256
68	32	19	12	7	12	8	9	167
51	43	35	29	21	15	10	13	217
64	42	28	34	26	21	9	13	237
58	32	27	27	24	16	5	9	198
19	23	23	36	14	12	13	6	146
35	35	36	30	45	26	14	25	246
38	19	17	16	13	12	6	8	129
166	96	40	30	20	14	7	26	399
249	206	81	32	11	11	8	14	612
326	156	114	66	31	14	9	6	722
150	58	19	10	12	7	1	6	263
56	63	62	44	38	29	31	54	377
18	20	15	19	24	34	28	35	193
13	9	12	12	14	16	14	12	102
89	67	41	24	13	5	1	6	246
164	144	75	40	25	17	18	17	500
76	65	37	38	26	12	15	35	304
111	84	44	20	8	7	5	8	287
136	55	32	30	26	27	26	71	403
74	52	48	43	41	18	7	26	309
								Block
29	30	29	26	13	5	4	2	138
10	9	9	20	14	15	9	21	107
61	50	33	28	21	12	9	5	219
69	41	23	23	17	11	12	12	208
144	43	27	32	28	35	28	39	376
43	38	42	30	23	17	9	11	213
72	78	44	38	36	32	23	50	373
104	55	52	32	39	29	25	58	394
95	64	70	55	31	15	13	13	356
51	54	34	33	29	10	7	8	226
172	68	33	17	13	8	14	15	340
19	4	3	2	4	10	6	11	59
37	18	14	16	11	2	4	2	104
58	33	37	17	15	8	5	8	181
34	12	5	10	9	5	2	4	81
21	7	14	9	9	6	7	5	78
13	10	15	10	8	13	7	9	85
58	53	31	36	14	5	2	...	199
2	1	2	2	4	2	5	1	19
15	12	14	8	6	4	3	1	63
18	15	28	15	5	5	4	7	97
127	80	54	44	27	14	13	16	375
84	61	64	43	37	21	21	19	350
107	66	33	41	26	27	11	26	337
25	51	65	49	37	29	23	20	299
99	94	82	80	39	46	32	69	541
82	74	61	52	39	21	12	18	359
113	63	52	28	21	15	6	11	309
90	70	51	45	15	15	8	12	306
227	190	114	50	19	13	4	6	628
4,855	3,314	2,359	1,845	1,302	998	718	1,096	16,487

XXIV.

106	88	106	106	53	89	27	18	593
241	307	143	143	110	33	66	33	1,076
276	163	146	197	129	141	113	214	1,379
293	174	109	119	76	65	98	43	977
183	79	39	59	59	59	33	20	531
681	244	92	118	151	160	109	277	1,832
411	290	218	169	85	121	24	36	1,354
193	101	118	118	76	92	34	34	766
329	159	106	42	85	21	11	42	795
107	146	126	194	136	117	117	88	1,031
65	98	76	65	11	11	...	44	370
269	362	238	186	166	31	83	...	1,335
842	463	454	435	180	180	57	151	2,762
361	332	218	199	133	199	86	85	1,613
392	632	347	303	196	178	151	241	2,440
288	185	216	93	72	62	41	51	1,008
274	304	157	147	108	39	49	59	1,137
1,397	866	853	433	247	148	148	210	4,302
611	172	287	153	210	249	226	287	2,195
890	498	239	230	210	163	67	153	2,450
775	365	216	137	80	137	91	103	1,904
427	360	293	243	176	126	84	109	1,818
689	452	301	366	280	226	97	140	2,351
588	325	274	274	243	162	51	91	2,008
183	221	221	346	135	115	125	58	1,404
393	393	404	336	505	291	157	281	2,760
320	160	143	135	109	101	51	67	1,086
1,514	875	365	273	182	128	64	237	3,638
2,702	2,235	879	347	119	119	87	152	6,640
3,122	1,494	1,092	632	297	134	86	58	6,915
1,126	436	143	75	90	53	7	45	1,975
581	654	643	394	436	301	322	560	3,891
233	259	195	246	311	441	363	454	2,502
116	80	107	107	125	142	125	107	909
1,033	778	476	279	151	58	12	70	2,857
1,449	1,272	663	354	221	150	159	150	4,418
674	576	328	337	230	106	133	310	2,694
1,313	993	520	237	95	83	59	95	3,395
1,618	655	381	357	309	321	309	845	4,795
782	550	507	455	433	190	74	275	3,266

XXV.

398	412	398	357	179	69	55	27	1,895
122	110	110	243	170	182	110	256	1,303
641	525	347	294	221	126	94	52	2,300
585	347	195	195	144	93	101	101	1,761
1,348	402	253	299	262	328	262	365	3,519
384	339	375	268	206	152	80	98	1,902
731	792	446	386	365	325	233	508	3,786
1,054	558	527	324	395	294	253	588	3,993
901	607	664	521	294	142	123	123	3,375
576	610	384	373	327	113	79	90	2,552
1,454	575	279	143	110	67	118	127	2,873
243	51	38	26	51	128	77	141	755
639	311	241	276	190	34	69	34	1,794
567	323	362	166	147	78	49	78	1,770
340	120	50	100	90	50	20	40	810
253	84	168	108	108	72	84	60	937
133	103	154	103	82	134	72	92	873
532	486	284	330	128	46	18	...	1,824
21	10	21	21	42	21	52	11	199
155	124	145	83	62	42	31	10	652
187	156	290	155	52	52	41	73	1,006
1,119	705	475	388	238	123	115	141	3,304
723	525	551	370	319	181	181	163	3,013
876	540	270	336	213	221	90	213	2,759
249	508	647	488	369	289	229	199	2,978
974	925	807	787	383	452	315	679	5,322
926	836	689	588	441	237	136	203	4,056
1,253	698	576	310	233	166	67	122	3,425
827	643	469	414	138	138	74	110	2,813
2,141	1,792	1,075	471	179	122	38	56	5,874
48,199	33,013	28,729	18,362	13,158	10,019	7,262	11,053	1,64,795

B 990—17

								Block
								Kin
286	183	110	75	41	25	10	11	741
221	110	94	57	41	43	24	32	622
155	114	95	62	53	23	29	42	573
133	103	77	89	68	50	31	46	597
144	141	127	98	69	73	43	56	751
122	98	76	55	61	62	45	101	620
128	105	71	55	54	24	11	13	461
155	111	125	79	51	32	29	31	613
138	113	88	58	34	18	17	14	480
38	33	39	35	31	25	29	27	257
150	81	43	17	11	10	5	6	323
130	111	100	77	46	30	23	20	537
298	173	135	98	63	40	25	34	866
102	61	60	55	34	24	16	26	378
101	103	110	64	60	41	35	58	572
228	234	215	146	81	65	41	31	1,041
111	117	98	70	51	46	37	41	571
339	296	210	148	109	68	43	63	1,276
51	73	110	113	77	59	52	79	614
135	108	92	98	103	93	56	79	764
87	96	90	90	80	62	61	110	676
190	174	166	134	98	73	45	89	969
134	116	112	73	56	30	30	42	593
133	100	90	87	67	52	35	30	594
117	111	89	64	43	44	34	38	540
135	120	156	138	110	82	67	122	930
145	124	122	62	41	32	19	19	564
157	77	90	85	50	37	29	49	574
130	93	48	39	19	15	19	23	386
309	159	88	70	47	25	16	27	741
109	85	67	46	34	31	26	24	422
106	87	85	62	44	24	28	48	484
71	89	96	73	43	43	24	33	472
106	60	64	64	48	39	32	60	473
209	120	63	38	32	17	10	8	497
460	308	155	79	41	29	16	40	1,128
49	33	43	29	26	22	20	72	294
160	109	60	38	25	21	14	22	449
51	39	47	58	40	34	28	85	382
96	85	69	45	40	43	26	67	471
								Block
76	62	64	46	46	20	13	23	350
120	139	103	94	75	71	64	87	753
171	147	110	101	70	53	35	36	723
228	204	148	99	69	49	36	56	889
183	109	103	67	54	55	30	81	682
166	149	123	105	63	62	41	78	787
116	83	95	80	51	53	52	90	620
109	50	51	52	51	52	39	79	483
194	161	171	139	83	67	54	94	963
137	121	112	86	48	43	35	65	647
279	109	95	89	46	68	45	91	822
73	55	51	46	27	26	12	14	304
120	83	80	37	37	11	13	8	389
90	84	83	76	41	29	29	62	494
139	98	82	50	26	27	25	28	475
108	63	92	44	33	30	21	24	415
217	144	113	83	65	26	28	25	701
269	172	115	79	31	31	23	13	733
256	138	84	57	33	17	20	11	616
161	110	104	44	27	25	13	9	493
128	96	90	71	44	24	22	28	503
103	69	51	44	33	37	33	53	423
119	96	61	54	43	29	29	41	472
138	64	71	42	27	24	12	17	395
103	68	58	43	38	18	26	22	376
150	137	136	93	47	57	32	78	780
156	146	106	59	45	39	38	63	652
335	194	86	39	26	14	12	9	715
175	81	84	60	38	41	29	45	553
414	196	93	51	35	18	10	13	830
12,152	8,081	6,690	4,953	3,474	2,722	2,051	3,161	43,284

XXIV.								
dal.								
2,532	1,620	974	664	365	221	88	97	6,561
2,425	1,207	1,032	626	450	472	263	351	6,826
872	641	534	349	298	129	163	236	3,222
1,444	1,119	836	967	738	543	337	499	6,483
942	923	831	641	452	478	281	366	4,914
1,026	824	638	462	513	521	378	849	5,211
1,548	1,270	859	665	653	290	133	157	5,575
1,302	933	1,050	664	428	268	244	260	5,149
1,465	1,200	934	616	361	191	181	149	5,097
370	321	379	340	301	243	282	263	2,499
1,635	883	469	185	120	109	55	65	3,521
1,346	1,149	1,035	797	476	310	238	207	5,558
2,818	1,636	1,277	927	596	378	236	321	8,189
968	579	569	522	322	228	152	247	3,587
899	917	980	570	534	365	312	517	5,094
2,344	2,406	2,211	1,501	833	668	422	319	10,704
1,088	1,146	960	686	500	451	363	402	5,596
4,191	3,660	2,596	1,830	1,348	841	532	779	15,777
974	1,395	2,101	2,158	1,471	1,127	998	1,510	11,734
1,292	1,034	880	938	986	890	536	756	7,312
991	1,094	1,026	1,026	912	706	695	1,254	7,704
1,591	1,457	1,390	1,122	821	611	377	745	8,114
1 412	1,249	1,206	786	603	323	323	452	6,384
1,349	1,014	913	882	680	528	355	304	6,025
1,125	1,067	856	615	414	423	327	365	5,192
1,515	1,347	1,751	1,549	1,234	920	752	4,369	10,437
1,221	1,044	1,027	522	345	269	160	160	4,748
1,432	702	821	775	456	337	264	447	5,234
1,410	1,009	521	423	206	163	206	250	4,188
2 959	1,523	843	670	450	239	153	278	7,115
819	638	503	346	255	233	195	180	3,169
1,100	903	882	643	456	249	290	498	5,021
921	1,154	1,245	947	557	557	311	428	6,120
945	535	570	570	428	348	285	535	4,216
2,427	1,393	731	441	372	197	116	93	1,770
4,065	2,722	1,370	698	362	256	141	354	9,968
434	293	381	257	231	195	177	638	2,606
1,893	1,289	710	450	296	248	166	260	5,312
607	464	559	690	476	405	333	1,012	4,546
1,015	898	730	476	423	454	275	708	4,979
XXV.								
1,044	851	879	631	632	275	178	316	4,806
1,461	1,692	1,254	1,145	913	865	779	1,059	9,168
1,797	1,544	1,156	1,061	735	557	368	378	7,596
1,931	1,728	1,253	838	584	415	305	474	7,528
1,713	1,020	964	627	505	515	281	758	6,383
1,482	1,330	1,098	938	563	554	366	697	7,028
1,178	843	964	812	518	538	528	913	6,294
1,105	507	517	527	517	527	395	801	4,896
1,840	1,526	1,622	1,318	787	636	512	891	9,132
1,548	1,367	1,265	971	542	486	395	734	7,308
2,358	921	803	752	389	575	380	769	6,947
936	705	653	590	346	332	154	179	3,896
2,071	1,432	1,380	639	639	190	224	138	6,713
881	821	812	744	401	284	284	606	4,833
1,392	981	821	501	260	270	250	280	4,755
1,298	757	1,106	529	397	861	252	288	4,988
2,230	1,480	1,161	853	668	267	288	257	7,204
2,466	1,577	1,055	724	284	284	211	119	6,720
2,686	1,448	881	598	346	178	210	115	6,462
1,666	1,139	1,076	455	279	259	134	94	5,102
1,328	996	934	737	457	249	228	290	5,219
907	608	449	388	291	326	291	467	3,727
1,024	827	525	465	370	250	249	353	4,063
1,130	524	581	344	221	197	98	139	3,234
1,026	677	578	428	379	179	259	219	3,715
1,476	1,348	1,338	915	462	561	315	767	7,182
1,762	1,649	1,198	667	508	441	429	712	7,366
3,714	2,151	954	432	288	155	132	100	7,926
1,609	745	772	551	349	377	267	414	5,084
3,904	1,848	877	481	330	170	94	123	7,827
1,11,705	81,700	68,106	50,657	35,682	27,658	20,951	32,130	4,28,589

								Block
								Jám
305	129	60	16	7	3	...	...	520
257	159	111	50	20	22	4	1	624
119	110	124	82	54	39	20	7	555
293	233	137	82	27	15	8	1	796
327	226	148	111	57	32	10	10	921
371	186	143	79	71	49	32	31	963
316	184	116	49	16	11	2	1	695
474	259	127	51	15	6	3	1	936
269	174	87	38	8	6	...	2	584
146	103	87	75	38	17	6	4	476
8	6	5	...	1	1	...	...	21
137	73	36	16	3	4	1	...	270
542	237	174	70	56	25	11	3	1,118
278	130	84	54	16	15	8	2	587
335	291	156	98	37	23	9	2	951
495	377	205	73	30	8	9	3	1,200
181	126	77	45	18	8	4	2	461
948	435	209	76	20	12	...	...	1,700
47	42	58	78	56	35	15	10	341
114	134	132	117	55	41	10	12	615
147	124	135	89	67	25	7	4	598
527	400	221	123	39	15	3	3	1,331
241	157	130	97	42	28	7	4	706
135	119	97	71	50	22	8	3	505
285	261	173	101	33	13	6	1	873
339	370	301	165	78	29	8	5	1,295
220	148	102	60	33	8	1	1	573
304	98	68	52	36	17	13	7	595
313	171	104	45	26	16	15	6	696
199	101	72	37	31	10	4	2	456
260	118	73	49	27	16	2	3	548
514	425	248	174	88	50	23	20	1,542
220	200	173	113	45	25	8	5	789
170	82	69	47	27	13	8	8	424
328	134	71	31	15	7	3	1	590
1,740	882	227	57	22	12	4	3	2,947
399	275	161	89	38	37	10	14	1,023
1,434	666	141	43	14	14	7	2	2,321
630	301	192	152	86	42	19	19	1,441
364	238	199	138	89	43	19	17	1,107
								Block
76	49	47	29	32	11	8	5	257
251	143	104	99	65	35	29	7	733
339	174	128	90	51	25	8	8	823
542	320	174	104	63	23	10	10	1,246
303	164	133	110	84	63	35	18	910
551	361	256	158	73	45	26	5	1,475
459	283	172	120	75	42	24	18	1,193
191	110	96	80	66	43	23	14	623
533	294	229	118	71	41	28	16	1,330
200	158	120	74	33	20	12	12	629
546	231	210	136	88	61	41	21	1,334
162	130	97	61	40	20	10	8	523
341	186	89	60	24	11	3	3	717
195	134	91	61	30	26	6	4	547
211	132	76	39	34	19	6	1	518
379	222	139	67	31	16	8	3	865
436	291	159	81	22	16	2	2	1,009
449	214	108	46	23	11	1	...	852
197	61	41	21	4	3	2	...	329
189	132	88	34	20	10	2	3	478
231	133	91	58	26	18	7	...	564
434	269	183	122	60	32	19	8	1,127
453	326	237	126	30	11	5	5	1,193
148	96	74	33	16	8	2	1	378
72	56	42	27	17	11	8	2	235
942	409	226	112	56	33	15	28	1,821
626	308	203	153	84	51	31	11	1,467
982	429	112	36	14	3	...	5	1,581
176	107	114	68	44	23	13	4	549
385	197	69	26	4	3	1	...	685
25,730	15,004	9,141	5,342	2,771	1,543	712	442	60,690

XXIV.								
ba.								
2,701	1,142	531	142	62	27	...	...	4,605
2,821	1,745	1,218	549	219	241	44	11	6,848
669	619	698	461	304	219	113	39	3,122
3,182	2,530	1,488	891	293	162	87	11	8,644
2,140	1,479	968	726	373	209	65	65	6,025
3,119	1,572	1,202	664	597	412	269	261	8,096
3,821	2,225	1,403	593	194	133	24	12	8,405
3,982	2,176	1,067	428	126	50	25	8	7,862
2,856	1,848	924	403	85	64	...	21	6,201
1,420	1,002	846	729	370	165	58	39	4,629
87	65	55	...	11	11	...	...	229
1,418	756	373	166	31	41	10	...	2,795
5,125	2,241	1,645	662	530	236	104	28	10,571
2,638	1,233	797	512	152	142	76	19	5,569
2,983	2,591	1,389	873	330	205	80	19	8,470
5,090	3,876	2,108	780	308	82	93	31	12,338
1,774	1,235	755	441	176	78	39	20	4,518
11,721	5,378	2,584	940	247	148	..	...	21,018
898	803	1,108	1,490	1,070	659	290	194	6,512
1,091	1,282	1,263	1,120	527	393	95	115	5,886
1,675	1,413	1,539	1,014	764	285	80	45	6,815
4,414	3,350	1,851	1,030	327	126	25	25	11,148
2,595	1,690	1,400	1,044	452	301	75	43	7,600
1,370	1,207	984	720	507	223	81	31	5,123
2,740	2,510	1,663	971	317	125	58	10	8,394
3,805	4,152	3,378	1,852	875	325	90	56	14,533
1,852	1,246	859	505	278	67	8	8	4,823
2,772	894	320	474	328	155	118	64	5,425
3,396	1,855	1,129	488	282	174	163	65	7,552
1,906	967	690	354	297	96	38	19	4,367
1,952	886	548	368	203	120	15	23	4,115
5,332	4,409	2,573	1,805	913	519	239	207	15,997
2,853	2,593	2,243	1,465	584	324	104	65	10,231
1,515	731	615	419	241	116	71	71	3,779
3,808	1,556	824	360	174	81	35	12	6,850
15,376	7,794	2,006	504	195	106	35	27	26,043
3,537	2,438	1,427	789	336	328	89	124	9,068
16,964	7,879	1,668	508	166	166	83	23	27,457
7,497	3,582	2,285	1,809	1,023	500	226	226	17,148
3,848	2,516	2,104	1,459	941	454	201	180	11,703
XXIV.								
1,044	673	645	398	439	151	110	69	3,529
3,056	1,741	1,246	1,205	792	426	353	85	8,924
3,562	1,828	1,345	945	536	262	84	84	8,646
4,590	2,710	1,474	881	534	194	85	84	10,552
2,836	1,535	1,245	1,030	786	589	328	168	8,517
4,920	3,224	2,286	1,411	652	402	232	45	13,172
4,659	2,873	1,746	1,218	761	426	244	183	12,110
1,936	1,115	973	811	669	436	233	142	6,315
5,054	2,788	2,172	1,119	673	389	265	152	12,612
2,259	1,785	1,355	836	372	226	136	136	7,105
4,615	1,952	1,775	1,149	744	515	347	177	11,274
2,076	1,666	1,243	781	513	256	128	102	6,765
5,884	3,210	1,536	1,035	414	190	52	52	12,373
1,907	1,311	890	597	293	255	59	39	5,351
2,118	1,322	761	390	340	190	60	10	5,186
4,555	2,668	1,671	805	373	192	96	36	10,396
4,481	2,991	1,634	833	226	164	20	20	10,369
4,116	1,962	990	422	211	101	9	...	7,811
2,067	640	430	220	42	31	21	...	3,451
1,956	1,366	911	352	207	103	21	81	4,947
2,397	1,380	944	602	269	187	73	...	5,852
3,823	2,370	1,612	1,075	529	282	167	70	9,928
3,900	2,806	2,040	1,085	258	95	43	43	10,270
1,212	786	606	270	131	66	16	8	3,095
717	558	418	269	169	109	80	20	2,340
9,267	4,024	2,223	1,102	551	325	148	275	17,915
7,073	3,480	2,293	1,723	949	576	350	124	16,574
10,886	4,755	1,242	399	155	33	...	55	17,525
1,618	984	1,048	625	405	211	119	37	5,047
3,630	1,858	651	245	38	28	9	...	6,459
2,60,952	1,51,827	92,253	54,317	28,239	15,678	7,194	4,464	614,924

								Block
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4	6	3	1	...	...	...	...	14
13	12	14	13	7	11	8	4	82
24	16	7	9	2	5	6	12	81
24	29	37	21	13	18	7	15	164
6	4	2	1	1	...	1	...	15
6	9	7	4	6	3	2	4	41
63	42	41	28	10	12	6	6	208
21	20	15	11	8	7	7	9	98
13	23	10	13	12	4	2	5	82
46	37	22	8	8	10	4	7	142
...	...	...	...	...	...	...	...	...
19	18	11	12	6	5	...	3	74
119	85	62	23	12	8	3	5	317
32	19	5	3	2	1	3	1	66
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...	1	...	2	...	...	...	1	4
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22	7	4	1	...	...	...	...	34
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1	1	...	...	2	...	...	...	4
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16	11	7	10	11	9	10	15	89
24	25	13	6	5	5	1	7	86
...	...	...	...	...	...	...	...	...
4	3	2	2	...	1	...	...	12
35	25	10	6	5	1	...	...	82
5	1	2	1	...	1	...	1	11
28	30	13	13	7	3	6	6	106
42	26	33	33	15	12	5	10	176
...	...	...	...	...	...	...	...	...
52	15	6	4	2	...	1	...	80
...	...	...	...	...	...	...	...	...
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								Block
2	2	3	...	1	...	...	1	9
5	1	1	2	1	2	...	3	15
33	28	25	27	20	9	11	9	162
113	72	60	42	20	20	14	14	355
9	2	1	...	...	...	...	1	13
73	66	46	33	26	16	15	9	284
2	...	...	1	...	...	...	...	3
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	1	...	1	1	...	1	...	4
...	1	...	...	...	1	...	1	3
13	6	5	2	4	6	3	3	42
...	...	...	...	...	...	...	...	...
47	23	13	11	9	7	8	9	127
16	10	9	6	...	5	1	2	49
7	9	14	11	16	9	8	5	79
...	...	...	...	...	...	...	...	...
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3	4	5	2	...	...	...	...	14
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944	690	508	363	232	191	134	168	3,230

XXIV.

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35	53	27	9	...	...	...	...	124
142	132	154	142	77	121	88	44	900
135	90	39	51	11	28	34	68	456
261	315	402	228	141	195	76	162	1,780
39	26	13	7	7	...	7	...	99
50	76	59	34	50	25	17	34	345
762	508	496	339	121	145	73	73	2,517
177	168	126	92	67	59	59	75	823
138	244	106	138	128	42	21	53	870
447	360	214	78	78	97	38	68	1,380
...	...	...	...	...	...	...	...	...
197	186	114	124	62	52	...	31	766
1,125	804	586	218	114	76	28	47	2,998
304	180	47	29	19	9	29	9	626
...	...	...	...	...	...	...	...	...
...	10	...	21	...	...	...	10	41
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
420	134	76	19	...	...	...	...	649
...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	11	...	22
8	8	...	...	17	...	...	...	33
...	...	...	...	...	...	...	...	...
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...	...	...	...	...	...	...	...	...
180	123	79	112	123	101	112	168	998
202	211	109	51	42	42	8	59	724
...	...	...	...	...	...	...	...	...
43	32	22	22	...	11	...	...	130
335	239	96	57	48	10	...	...	785
38	8	15	8	...	7	...	7	83
290	311	135	135	73	31	62	62	1,099
544	337	428	428	194	156	65	130	2,282
...	...	...	...	...	...	...	...	...
604	174	70	46	23	...	12	...	929
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XXV.

27	27	41	...	14	...	...	14	123
61	12	12	24	12	24	...	37	182
347	294	263	284	210	94	116	94	1,702
957	610	508	356	169	169	119	118	3,006
84	19	9	...	...	...	...	9	121
652	589	411	295	232	143	134	80	2,536
20	...	...	10	...	...	...	...	30
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	12	...	11	11	...	11	...	45
...	9	...	.	...	8	...	8	25
167	77	64	26	51	77	38	38	538
...	...	...	...	...	...	...	...	...
460	225	127	108	88	68	78	88	1,242
160	100	90	60	...	50	10	20	490
84	108	168	132	192	108	96	60	948
...	...	...	...	...	...	...	...	...
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33	41	56	22	...	...	...	...	155
...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	9
9,548	6,855	5,162	3,716	2,374	1,948	1,342	1,636	32,611

								Block Sissum
101	54	18	11	7	2	1	...	194
25	14	16	8	7	5	2	3	80
31	26	8	7	5	3	3	4	87
51	36	20	7	2	1	2	...	119
51	37	23	9	5	...	1	...	126
40	27	7	8	4	2	...	...	88
26	26	15	12	2	2	1	...	84
35	26	16	10	3	2	2	...	94
17	9	11	11	3	4	...	...	55
26	24	25	36	19	6	8	4	148
1	2	...	...	1	...	1	...	5
48	40	32	19	3	3	...	...	145
120	60	42	26	10	7	4	3	272
25	11	10	5	5	4	4	3	67
16	7	5	4	...	...	...	1	33
5	6	8	5	4	2	1	1	32
16	9	9	6	1	...	...	1	42
22	24	6	5	1	5	1	1	65
18	15	7	11	3	9	4	...	67
4	7	5	4	2	2	...	1	25
16	3	6	4	3	...	...	...	32
21	14	17	4	5	5	1	...	67
9	4	8	6	5	...	...	1	33
20	18	9	3	1	1	...	...	52
11	17	16	10	8	4	2	3	71
9	18	18	10	3	2	1	...	61
51	24	29	17	13	8	4	5	151
32	16	7	3	2	2	...	...	62
21	18	5	4	3	3	...	...	54
72	38	18	12	7	...	1	...	148
34	21	6	4	3	...	...	...	68
45	30	10	10	4	1	1	...	101
30	28	37	24	14	16	3	7	159
7	6	5	1	1	...	...	...	20
87	68	29	14	4	3	...	1	206
7	10	7	7	3	1	1	...	36
...	...	..	...	...	...	...	...	...
16	1	4	1	...	...	...	...	22
8	4	5	2	1	...	...	2	22
6	3	2	2	...	...	1	...	14
								Block
9	6	6	2	4	1	1	...	29
18	11	1	4	1	...	...	...	35
28	19	14	5	5	1	3	1	76
23	20	12	7	5	2	3	1	76
68	33	23	21	8	3	2	...	158
63	35	20	15	7	4	2	...	146
75	55	27	21	7	5	1	...	191
54	21	15	9	2	2	2	1	106
58	37	29	17	4	2	1	1	149
33	6	5	4	3	1	...	...	52
70	26	10	5	...	2	1	1	115
31	16	12	4	2	1	...	...	66
44	17	14	13	2	3	...	3	96
15	10	5	10	5	4	2	6	57
20	13	3	2	5	3	1	1	48
33	31	19	15	5	8	1	...	112
24	20	11	7	3	1	...	1	67
20	12	8	2	...	1	...	...	43
4	1	4	2	...	...	...	...	11
44	18	8	2	1	...	...	...	73
19	3	5	3	...	...	...	...	30
33	14	14	9	6	2	1	2	81
15	7	7	5	4	2	1	...	41
10	3	6	1	1	...	1	...	22
5	4	2	1	...	...	...	...	12
26	18	15	12	6	...	1	1	79
3	9	4	4	2	...	...	...	22
8	1	2	2	...	1	1	1	16
3	4	7	3	5	3	1	...	26
...	3	1	...	...	...	...	...	4
2,039	1,274	830	549	260	157	76	61	5,246

XXIV.

(*Blackwood*).

894	478	159	97	62	18	9	...	1,717
274	154	176	88	77	55	22	33	879
174	146	45	39	28	17	17	23	489
554	391	217	76	22	11	22	...	1,293
334	242	150	49	33	...	7	...	825
336	227	59	67	34	17	...	...	740
314	314	181	145	24	24	12	...	1,014
294	218	135	84	25	17	17	...	790
181	95	117	117	32	42	...	...	584
253	233	243	350	185	58	78	39	1,439
11	22	..	...	11	...	11	...	55
497	414	331	197	31	31	...	...	1,501
1,185	567	397	246	95	66	38	28	2,572
237	104	95	47	47	38	38	29	635
142	62	45	36	...	...	...	9	294
52	62	82	51	41	21	10	10	329
157	88	88	59	10	...	...	10	412
272	297	74	62	12	62	12	13	804
344	286	134	210	57	172	76	...	1,279
38	67	48	38	19	19	...	10	239
182	34	68	46	34	...	...	...	364
176	117	142	34	42	42	8	...	561
97	43	86	64	54	...	...	11	355
203	183	91	31	10	10	...	...	528
106	164	154	96	77	38	19	29	683
101	202	202	112	34	22	11	...	684
429	202	244	143	109	67	34	42	1,270
292	146	64	27	18	18	...	...	565
223	195	54	43	33	33	...	...	586
689	364	172	115	67	...	10	...	1,417
255	158	45	30	23	...	...	...	511
467	311	104	104	42	10	10	...	1,048
339	363	480	311	181	207	39	91	2,061
62	53	45	9	9	...	...	...	178
1,010	789	337	162	46	35	...	12	2,391
62	88	62	62	26	9	9	...	318
...	...	...	...	...	...	...	...	...
189	12	47	12	...	...	...	...	260
95	48	59	24	12	...	...	24	262
63	32	21	21	...	...	11	...	148

XXV.

123	82	82	28	55	14	14	...	398
219	134	12	49	12	...	...	...	426
294	199	147	53	52	11	32	10	798
220	169	102	59	8	26	17	42	643
636	309	215	197	75	28	19	...	1,479
563	312	179	134	62	36	18	...	1,304
761	558	274	213	71	51	10	...	1,938
548	213	152	91	20	20	20	10	1,074
550	351	275	161	38	19	9	9	1,412
373	28	56	45	34	11	...	...	587
591	220	85	42	...	17	8	8	971
397	205	154	51	25	13	...	...	845
759	293	241	224	35	52	...	52	1,656
147	98	49	98	49	39	19	58	557
200	130	30	20	50	30	10	10	480
397	373	228	180	60	96	12	...	1,346
246	206	113	72	31	10	...	10	688
184	110	73	18	...	9	...	...	394
42	10	42	21	...	...	...	...	115
455	186	83	21	10	...	...	...	755
197	31	52	31	...	...	...	...	311
291	123	123	79	53	18	9	18	714
129	60	60	43	35	17	9	...	353
82	25	49	8	8	...	8	...	180
50	40	20	10	...	...	...	...	120
256	177	147	118	59	...	10	10	777
34	102	45	45	23	...	...	...	249
89	11	22	22	...	11	11	11	177
28	37	64	27	46	28	9	...	239
...	28	9	...	...	...	...	...	37
		...						
20,449	12,831	8,436	5,674	2,573	1,715	764	661	53,103

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...	...	...	...	...	...	...	...	...
11	4	1	2	1	2	1	5	27
2	1	3	2	2	2	...	4	16
2	2	3	1	3	3	2	5	21
2	...	...	...	1	2	1	3	9
12	20	18	5	1	2	...	...	58
3	4	9	...	5	2	1	2	26
19	16	15	6	5	2	3	3	69
6	...	...	4	1	2	1	2	16
1	2	1	...	1	...	...	1	6
1	1	1	3	3	2	1	1	13
6	1	...	2	1	...	...	1	11
...	...	...	...	...	...	1	2	3
...	...	...	1	...	...	1	...	2
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1	1	1	...	...	...	...	1	4
...	...	1	...	...	1	...	3	5
Not enumerated separately.								
...	...	...	...	...	...	...	...	...
2	2	2	1	...	2	1	1	11
1	4	4	3	1	...	1	...	14
...	...	...	...	...	...	...	1	1
1	...	1	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...
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1	1	2	...	...	...	...	1	5
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1	1	3	2	3	3	1	3	17
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...	1	1	2	2	1	...	4	11
...	...	1	1	2	1	2	10	17
1	2	1	...	...	1	1	5	11
2	2	...	...	...	...	1	2	7
...	...	...	...	...	...	...	3	3
...	1	...	1	1	1	...	3	7
1	...	1	...	...	...	1	1	4
1	1	1	...	1	3	4	6	17
5	3	...	2	...	...	1	1	12
...	...	...	...	...	...	...	...	...
5	3	...	4	1	2	3	3	21
13	10	6	6	1	1	1	1	39
3	4	2	2	4	2	1	5	23
13	13	5	2	1	3	1	3	41
12	15	6	4	...	...	3	4	44
14	9	7	7	3	2	2	...	44
17	18	18	13	11	8	5	4	94
4	8	2	5	2	...	1	2	24
1	...	...	...	...	...	—	...	1
...	...	...	...	...	...	...	1	1
3	...	1	...	3	1	...	...	8
1	1	...	...	...	...	...	...	2
...	1	...	...	...	...	...	1	2
...	...	1	3	3	1	1	...	9
...	1	...	2	...	2	1	1	7
...	...	...	...	...	...	...	...	...
5	3	2	...	...	...	...	...	10
174	156	122	86	63	55	44	108	808

XXIV.								
ne.								
9	...	...	...	...	...	...	27	36
...	...	...	...	...	...	...	...	...
62	23	6	11	6	11	6	28	153
22	11	33	22	22	22	...	43	175
13	13	20	7	20	20	13	33	139
17	...	...	...	8	17	8	25	75
145	242	218	60	12	24	...	...	701
25	34	76	...	42	17	8	17	219
202	170	159	64	53	21	32	32	733
58	...	...	39	10	19	10	19	155
11	22	11	...	11	...	...	11	66
11	11	10	31	31	21	10	10	135
57	10	...	19	9	...	...	9	104
...	...	...	...	...	...	9	19	28
...	...	...	9	...	...	9	...	18
...	...	...	...	...	...	...	...	...
10	10	10	...	...	...	...	9	39
...	...	12	...	...	13	...	37	62
Not enumerated separately.								
...	...	...	...	...	...	...	...	...
23	23	23	11	...	23	11	11	125
8	34	34	25	8	...	8	...	117
...	...	...	...	...	...	...	11	11
10	...	10	...	...	...	...	...	20
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	45	45
...	...	...	...	...	...	...	...	...
9	9	18	...	...	...	...	9	45
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...	...	...	...	...	...	...	...	...
XXV.								
...	...	...	...	...	...	...	27	27
12	12	37	24	36	37	12	36	206
...	...	10	...	...	...	...	...	10
...	9	8	17	17	8	...	34	93
...	...	9	9	19	9	19	94	159
9	18	9	...	...	9	9	44	98
20	20	...	...	...	...	10	21	71
...	...	...	...	...	...	...	30	30
...	10	...	9	9	9	...	29	66
12	...	11	...	...	...	11	11	45
9	8	8	...	8	25	34	51	143
64	38	...	25	...	...	13	13	153
...	...	...	...	...	...	...	...	...
49	29	...	39	10	20	29	29	205
130	100	60	60	10	10	10	10	390
36	48	24	24	48	24	12	60	276
134	134	51	20	10	31	10	31	421
110	138	55	37	...	...	27	36	403
147	94	74	73	31	21	21	...	461
176	186	186	135	114	83	52	41	973
41	83	21	52	21	...	10	21	249
9	...	...	...	...	...	...	...	9
...	...	...	...	...	...	...	9	9
25	...	8	...	24	8	...	...	65
10	10	...	...	...	...	...	...	20
...	10	...	...	...	...	...	10	20
...	...	11	34	34	11	11	...	101
...	11	...	22	...	22	11	11	77
...	...	...	...	...	...	...	...	...
47	28	19	...	...	...	...	...	94
1,732	1,598	1,250	878	623	545	425	1,043	8,094

								Block
								Hed
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
3	1	...	2	...	1	...	2	9
...	...	1	...	...	3	1	5	10
...	...	...	...	..	1	...	3	4
...	...	...	...	...	...	...	1	1
...	...	2	...	...	1	1	1	5
1	...	2	1	1	3	1	11	20
...	...	...	...	1	1	1	4	7
...	1	1	2	...	1	1	3	9
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
1	2	...	...	...	..	...	1	4
...	...	...	...	...	...	...	2	2
...	...	1	...	2	1	1	2	7
4	4	1	...	...	...	...	...	9
3	2	1	1	1	2	1	3	14
...	...	...	...	...	...	...	...	...
Not enumerated separately.								
1	...	...	...	...	...	...	3	4
...	...	1	2	1	...	...	4	8
4	1	1	2	...	1	...	3	12
1	...	1	1	...	...	...	1	4
18	13	7	2	1	5	5	4	55
5	...	...	...	...	1	1	1	8
3	3	1	...	...	...	...	...	7
...	...	...	...	..	...	...	...	...
17	6	1	...	...	...	...	12	36
4	3	8	4	2	1	...	6	28
4	4	...	1	...	1	2	3	15
7	3	3	1	1	1	2	1	19
4	1	1	...	...	...	...	1	7
1	1	...	...	...	...	...	3	5
1	1	1	...	...	...	...	2	5
6	..	2	3	2	1	2	7	23
1	...	...	...	...	...	...	1	2
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	..	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
								Block
...	...	1	...	1	...	...	...	2
...	3	4	...	1	1	3	9	21
1	...	1	2	...	2	5	7	18
...	...	...	...	...	3	...	3	6
...	...	..	...	...	...	...	3	3
1	1	2	1	1	...	...	1	7
...	1	1	...	...	...	...	3	5
...	...	...	...	...	...	...	3	3
3	5	7	9	6	6	6	47	89
4	...	1	1	...	...	...	1	7
4	1	...	...	...	...	...	5	10
2	1	2	...	1	...	...	4	10
1	...	...	...	...	...	1	..	2
4	2	...	1	1	2	1	11	22
...	...	3	...	...	2	...	1	6
2	2	1	1	1	1	...	1	9
3	5	3	3	2	2	2	3	23
1	4	...	...	...	1	5	9	20
1	5	1	...	...	1	4	4	16
8	10	11	6	10	3	2	6	56
1	3	1	3	3	7	3	22	43
..	1	...	...	...	1	1	9	12
5	3	...	2	2	1	1	1	15
12	3	3	2	1	3	1	2	27
4	10	14	9	7	2	3	2	51
3	2	1	1	...	1	...	7	15
4	1	2	...	6	3	4	16	36
...	...	...	...	...	...	..	...	...
93	39	8	3	...	...	1	2	146
36	7	7	...	1	...	1	...	52
282	155	110	66	56	67	63	272	1,071

XXIV.								
di.								
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
17	6	...	11	...	6	...	11	51
...	...	11	...	...	33	11	54	109
...	...	...	...	...	7	...	20	27
...	...	...	...	...	...	...	8	8
..	...	24	...	...	12	12	12	60
8	...	17	8	8	25	8	92	166
...	...	...	...	11	11	11	42	75
...	10	10	19	...	10	10	29	83
...	...	...	...	...	...	...	...	...
...	..	...	...	...	...	...	...	...
10	19	...	...	...	...	...	9	38
...	...	...	...	...	...	...	19	19
...	...	9	...	18	9	9	18	63
41	41	10	...	...	...	...	...	92
29	19	10	10	10	20	10	29	137
...	...	...	...	...	...	...	...	...
Not enumerated separately.								
10	...	...	...	...	...	...	29	39
...	...	11	23	11	...	...	46	91
34	8	8	17	...	8	...	25	100
11	...	11	11	...	...	...	10	43
183	132	71	20	10	51	51	40	558
48	...	...	...	...	9	10	10	77
34	34	11	...	...	...	...	...	79
...	...	...	...	...	...	...	...	...
155	55	9	...	...	...	...	109	328
43	33	87	43	22	11	...	65	304
38	38	...	10	...	10	19	29	144
53	23	23	7	7	7	15	8	143
42	10	10	...	...	..	...	10	72
13	13	...	...	...	...	...	39	65
9	9	9	...	...	...	...	18	45
70	...	23	35	23	12	23	81	267
9	...	...	...	...	...	...	9	18
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
XXV.								
...	...	14	...	14	...	...	...	28
...	36	49	...	12	12	36	110	255
11	...	10	21	...	21	53	73	189
...	...	...	...	...	25	...	25	50
...	...	...	...	...	...	...	28	28
9	9	18	9	9	...	...	9	63
...	10	10	...	...	...	...	31	51
...	...	...	...	...	...	...	30	30
28	47	66	85	57	57	57	446	843
45	...	12	11	...	...	...	11	79
34	8	...	...	...	...	...	42	84
26	13	25	...	13	...	...	51	128
17	...	...	...	...	...	17	...	34
39	20	...	10	10	19	10	107	215
...	...	30	...	...	20	...	10	60
24	24	12	12	12	12	...	12	108
31	51	31	31	21	21	20	30	236
9	37	...	...	...	9	46	82	183
11	52	11	...	...	10	42	42	168
83	104	114	62	103	31	21	62	580
10	31	10	31	31	73	31	228	446
..	9	...	...	...	9	9	79	106
43	26	...	17	17	9	9	8	129
98	25	25	16	8	25	8	16	221
40	99	139	90	70	20	30	20	504
29	20	10	10	...	10	...	69	148
45	11	23	...	68	34	45	181	407
...	...	...	...	...	...	...	...	...
855	359	73	28	...	...	9	18	1,342
340	66	66	...	9	...	9	...	490
2,684	1,507	1,112	647	574	658	641	2,691	10,514

B 990—20

								Block
								Dha
31	14	8	...	...	...	..	...	53
42	25	9	2	5	...	...	1	84
8	10	7	7	5	1	...	...	38
24	15	12	3	2	...	...	...	56
30	24	13	4	2	...	...	...	73
55	44	33	21	7	...	...	...	160
18	18	16	6	1	...	...	...	59
27	13	6	3	1	2	...	...	52
16	13	6	2	1	...	...	...	38
110	72	20	6	2	...	...	...	210
...	...	...	...	...	...	...	...	...
35	16	12	...	...	...	...	...	63
274	125	24	7	3	2	2	...	437
64	30	6	3	...	...	...	...	103
8	6	4	2	...	...	...	...	20
10	6	1	1	...	...	...	...	18
26	17	2	...	1	...	...	...	46
21	10	2	3	...	...	...	..	36
Not enumerated separately.								
43	22	11	4	2	...	...	...	82
23	32	9	3	...	...	...	...	72
122	51	14	6	2	...	...	...	195
70	24	7	3	...	...	...	...	104
36	17	8	1	...	...	...	...	62
14	13	2	3	...	2	...	...	34
15	17	16	8	4	1	...	...	61
68	33	14	6	2	1	...	...	124
298	118	53	20	4	4	4	...	501
175	109	34	6	1	1	...	...	326
173	74	23	5	...	...	...	1	276
74	29	19	5	...	...	...	...	127
103	46	11	4	2	...	...	...	166
48	16	17	5	2	...	...	...	88
3	2	...	...	1	...	...	...	6
55	42	14	3	1	...	...	...	115
38	34	12	5	...	1	...	...	90
5	7	2	...	...	2	...	...	16
13	8	4	1	...	...	...	...	26
14	5	1	...	...	1	...	...	21
85	36	14	2	...	...	...	...	137
								Block
62	28	15	8	2	1	...	...	116
38	22	11	2	3	1	...	...	77
53	35	15	6	4	2	...	...	115
43	38	36	17	...	2	...	...	136
410	162	52	21	8	5	2	1	661
53	34	18	6	4	...	1	...	116
276	125	49	12	6	2	...	...	470
233	119	40	16	9	2	...	...	419
79	48	31	15	7	3	1	...	184
39	11	9	3	2	...	...	...	64
107	35	16	9	3	1	...	...	171
24	7	1	1	...	...	...	...	33
136	30	6	2	...	1	...	...	175
103	52	27	7	1	...	...	...	190
33	25	7	4	4	...	...	...	78
43	21	11	5	...	...	...	...	80
33	6	5	3	...	1	...	...	48
103	29	7	7	...	...	...	...	146
6	2	...	2	...	...	...	...	10
8	6	1	1	...	...	...	...	16
18	7	1	2	...	...	...	...	28
158	51	30	11	1	...	...	...	251
119	57	26	7	1	...	...	...	210
101	36	9	5	...	...	...	...	151
29	16	9	1	2	...	...	...	57
30	11	9	4	1	...	...	...	55
35	12	11	1	2	...	1	1	63
96	34	12	...	...	...	...	...	142
51	25	16	3	2	...	...	...	97
107	73	36	6	...	...	1	...	223
4,910	2,350	982	347	113	39	12	4	8,757

XXIV.								
nni.								
274	124	71	...	...	...	...	...	469
461	274	99	22	55	...	...	11	922
45	56	39	39	28	6	...	...	213
261	162	130	33	22	...	...	...	608
196	157	85	26	13	...	...	...	477
462	370	277	177	59	...	...	...	1,345
218	218	194	73	12	...	...	...	715
227	109	50	25	8	17	...	...	436
170	138	64	21	11	...	...	...	404
1,070	700	194	58	19	...	...	...	2,041
...	...	...	...	...	...	...	..	...
362	166	124	...	...	...	...	...	652
2,591	1,182	227	66	28	19	19	...	4,132
607	285	57	28	...	...	...	...	977
71	53	36	18	...	...	...	...	178
103	62	10	10	...	...	...	...	185
255	167	20	...	10	...	...	...	452
260	124	25	37	...	...	...	...	446
Not	enumerated separately.							
412	210	105	38	19	...	...	...	784
319	365	103	34	...	...	...	...	821
1,022	427	117	50	17	...	...	...	1,633
754	258	75	32	...	...	...	...	1,119
365	173	81	10	...	...	...	...	629
135	125	19	29	...	19	...	...	327
101	202	202	112	34	22	11	...	684
572	278	118	51	17	8	...	...	1,044
2,717	1,076	483	182	36	36	37	...	4,567
1,899	1,183	369	65	11	10	...	...	3,537
1,657	709	220	48	...	...	...	10	2,644
556	218	143	37	...	...	...	...	954
1,069	477	114	41	21	...	...	...	1,722
623	208	219	65	26	...	...	...	1,141
27	18	...	...	9	...	...	...	54
638	488	162	35	12	...	...	...	1,335
336	300	106	44	...	9	...	...	795
44	62	18	...	...	18	...	...	142
153	95	47	12	...	...	...	...	307
166	60	12	...	...	12	...	...	250
898	381	148	21	..	...	...	...	1,448
XXV.								
851	385	206	110	27	14	...	...	1,593
463	268	134	24	36	12	...	...	937
557	368	158	63	42	21	...	...	1,209
364	322	305	144	...	17	..	...	1,152
3,838	1,516	487	196	75	47	19	9	6,187
473	304	161	53	36	...	9	...	1,036
2,802	1,269	497	122	61	20	...	...	4,771
2,362	1 206	406	162	91	20	...	...	4,247
749	455	294	142	66	29	9	...	1,744
441	124	102	34	22	...	...	...	723
904	296	135	76	25	9	...	...	1,445
307	90	13	13	...	...	...	--	423
2 347	518	103	34	...	17	...	...	3,019
1,008	509	264	68	10	...	...	...	1,859
380	250	70	40	40	...	...	...	780
517	252	132	60	...	...	...	...	961
339	62	51	31	...	10	...	...	493
944	266	64	64	...	...	...	...	1,338
63	21	...	21	...	...	...	...	105
83	62	10	10	...	...	...	...	165
187	72	10	21	...	...	...	...	290
1,392	449	264	97	9	...	...	...	2,211
1,024	490	224	60	9	...	...	...	1,807
827	294	74	41	...	...	...	...	1,236
289	159	90	10	20	...	...	...	568
295	108	89	39	10	...	...	...	541
396	136	124	11	23	...	11	11	712
1,064	377	133	...	...	...	...	...	1,574
469	230	147	27	18	...	...	...	891
1,009	688	340	56	...	...	9	...	2,102
48,840	23,206	9,650	3,368	1,087	392	124	41	86,708

								Block
								Apta
10	1	4	2	...	...	...	...	17
8	3	1	.	...	...	...	...	12
3	4	2	...	...	...	1	...	10
3	4	...	1	1	...	...	...	9
3	...	1	...	...	...	...	...	4
6	6	1	2	...	...	1	...	16
10	7	5	...	2	1	...	...	25
6	3	1	1	1	...	...	...	12
5	2	1	1	...	1	...	...	10
6	5	3	...	1	1	...	...	16
1	...	...	3	...	...	...	...	4
8	4	1	...	...	...	...	...	13
10	3	2	2	...	1	...	1	19
5	4	5	...	1	2	...	...	17
8	1	1	1	...	1	...	...	12
1	3	1	2	3	...	...	2	12
4	2	3	1	1	1	..	...	12
1	3	2	2	...	...	...	...	8
Not enumerated separately.								
12	6	2	1	...	...	...	...	21
17	3	...	3	1	...	...	...	24
22	9	5	6	2	4	1	1	50
8	9	5	5	5	...	1	...	33
5	4	2	1	...	...	...	...	12
6	4	2	1	1	...	...	...	14
2	2	1	2	...	2	...	...	9
11	4	1	...	...	...	...	...	16
13	7	4	1	...	...	...	...	25
5	4	6	...	...	...	...	...	15
13	9	4	1	1	...	1	...	29
8	6	1	3	1	...	...	...	19
7	2	4	1	...	...	...	...	14
2	2	1	...	1	...	...	2	8
6	1	...	...	...	...	...	...	7
20	10	2	...	...	1	...	...	33
31	11	6	2	2	1	...	...	53
6	1	2	1	...	...	...	...	10
8	4	2	1	1	1	...	...	17
10	...	3	3	1	1	...	...	18
12	4	3	3	...	2	1	1	26
								Block
14	3	1	1	...	...	...	...	19
8	4	1	...	...	...	...	...	13
26	10	6	4	2	...	...	...	48
...	1	...	...	...	...	...	...	1
14	11	3	...	...	...	...	...	28
6	2	4	3	...	...	...	...	15
4	6	1	2	...	1	...	...	14
1	...	2	...	...	...	...	...	3
...	2	3	...	...	...	...	...	6
5	1	2	...	...	...	...	...	8
2	2	3	...	...		...	...	7
5	6	...	2	...	...	...	...	13
1	...	3	3	1	...	...	...	8
9	6	3	1	2	2	1	...	24
4	6	...	1	...	...	...	...	11
5	1	...	...	...	...	...	...	6
7	2	3	1	1	...	...	...	14
3	5	5	3	...	...	...	...	16
...	1	2	1	...	...	...	...	4
1	1	...	...	...	...	...	...	2
2	...	1	...	...	...	...	...	3
8	5	3	2	...	...	...	...	18
4	2	2	...	...	...	...	...	8
25	10	5	1	...	...	...	...	41
15	6	4	...	...	...	...	...	25
1	...	2	...	1	...	...	...	4
6	4	2	1	...	...	...	...	13
16	7	3	1	...	..	...	...	27
32	10	8	4	2	1	1	...	58
4	6	1	...	...	...	...	...	11
550	277	163	84	35	24	8	7	1,148

XXIV.								
89	9	35	18	...	...	...	...	151
88	33	11	...	...	...	...	...	132
17	23	11	...	...	...	6	...	57
33	43	...	11	11	...	...	...	98
20	...	7	...	...	...	...	...	27
50	50	8	17	...	...	8	...	133
121	85	60	...	24	12	...	...	302
50	25	8	8	8	...	...	...	99
53	21	11	11	...	11	...	...	107
58	49	29	...	10	10	...	...	156
11	...	...	33	...	...	...	...	44
83	42	10	...	...	...	...	...	135
95	28	19	19	...	10	...	9	180
47	38	47	...	10	19	...	...	161
71	9	9	9	...	9	...	...	107
10	31	10	21	31	...	...	21	124
39	20	29	10	10	10	...	...	118
12	37	25	25	...	...	...	...	99
			Not enumerated separately.					
115	57	19	10	...	...	...	...	201
194	34	...	34	11	...	...	...	273
184	75	42	50	17	34	8	8	418
86	97	54	54	54	...	10	...	355
51	40	20	10	...	...	..	...	121
58	38	19	10	10	...	...	...	135
23	23	11	22	...	22	...	...	101
93	34	8	...	...	...	...	...	135
118	64	37	9	...	...	...	...	228
54	44	65	...	...	...	...	...	163
125	86	38	10	9	...	10	...	278
60	45	8	23	7	...	...	...	143
73	21	41	10	...	...	...	...	145
26	26	13	...	13	...	...	26	104
53	9	...	...	...	...	...	...	62
232	116	23	...	...	12	...	...	383
274	97	53	18	17	9	...	...	468
53	9	18	8	...	...	..	...	88
95	47	23	12	12	12	...	...	201
119	...	36	35	12	12	...	...	214
127	42	32	32	...	21	10	11	275
XXV.								
192	41	14	14	...	...	...	..	261
97	49	12	...	...	...	...	...	158
273	105	63	42	21	...	...	...	504
...	8	...	...	...	..	...	...	8
131	103	28	...	...	...	...	...	262
53	18	36	27	...	...	...	...	134
41	61	10	20	...	10	...	...	142
10	...	20	...	...	...	...	...	30
...	19	28	...	...	...	...	...	47
56	11	23	...	...	...	...	...	90
17	17	25	...	...	...	...	...	59
64	77	...	25	...	...	...	...	166
17	...	52	52	17	...	...	...	138
88	59	29	10	19	19	10	...	234
40	60	...	10	...	...	...	...	110
60	12	...	...	...	...	...	...	72
72	21	31	10	10	...	...	...	144
28	46	45	27	...	...	...	...	146
...	11	21	10	...	..	...	...	42
10	10	...	..	...	...	...	...	20
21	...	10	...	...	...	...	...	31
70	44	26	18	...	...	..	...	158
34	17	17	...	...	...	...	...	68
205	82	41	8	...	...	...	...	336
149	60	40	...	...	...	...	...	249
10	...	19	...	10	...	...	...	39
68	45	23	11	...	...	...	...	147
177	78	33	11	...	...	...	...	299
294	92	74	37	18	9	9	...	533
38	57	9	...	...	...	...	...	104
5,475	2,750	1,618	861	361	241	71	75	11,452

B 990—21

								Block
								Jámbul.
7	9	7	2	2	...	1	...	28
5	12	3	3	2	2	2	2	31
3	1	...	...	1	1	...	...	6
...	...	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	2
5	4	2	3	4	...	...	1	19
...	...	...	...	...	...	...	...	...
6	8	4	7	2	...	2	1	30
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
66	71	37	25	15	9	4	5	232
2	1	1	2	...	...	1	...	7
1	4	3	3	1	...	1	2	15
3	...	...	...	...	...	...	...	3
4	2	1	3	1	1	1	...	13
9	11	7	5	1	3	2	3	41
3	1	5	2	2	...	...	2	15
27	20	16	10	6	3	1	4	87
		Not enumerated separately.						
1	1	3	...	1	...	1	...	7
2	1	1	...	...	...	...	...	4
4	...	3	...	1	3	...	..	11
5	9	2	3	4	...	...	...	23
9	4	7	1	3	1	1	1	27
12	7	7	...	2	3	2	2	35
8	4	2	2	3	4	...	3	26
4	1	4	...	...	...	...	1	10
2	2	...	...	1	...	...	...	5
...	1	1	...	...	...	1	3	6
1	...	...	1	...	2	...	2	6
3	2	...	1	1	...	3	3	13
3	3	3	...	...	...	...	...	9
2	...	1	1	1	...	...	...	5
10	8	5	1	5	1	...	2	32
9	2	...	2	1	2	...	...	16
25	9	8	7	2	1	1	...	53
4	3	1	3	3	2	2	...	18
17	9	1	3	3	1	1	1	36
7	6	5	7	2	...	1	...	28
6	3	2	3	1	1	...	2	18
								Block
	1	...	2	1	1	1	1	7
...	1	3	...	3	1	...	1	10
1	5	4	2	4	2	2	1	22
2	3	1	2	5	1	1	1	16
...	...	...	...	...	...	...	1	1
4	7	3	5	...	3	1	1	24
...	...	...	...	...	...	...	...	...
1	...	...	2	...	...	...	...	3
2	1	...	1	...	...	1	2	7
...	2	3	...	3	...	3	...	11
...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	1
1	...	1	3	...	...	...	...	5
...	...	...	...	...	...	...	...	...
1	1	1	1	1	...	...	3	8
...	...	...	...	...	...	...	...	...
..	...	...	...	...	...	...	...	...
...	1	...	2	...	...	...	...	3
9	5	5	...	1	2	1	1	24
3	3	1	1	1	...	...	...	9
8	2	1	1	2	...	...	...	14
5	1	...	1	...	...	...	...	7
2	2	1	1	1	1	...	1	9
12	6	7	12	9	4	2	8	60
3	5	2	3	4	2	3	4	26
...	2	...	...	3	...	...	2	7
10	16	8	4	6	5	4	3	56
23	25	12	8	7	3	...	2	80
4	4	1	2	...	...	...	1	12
8	4	...	2	2	...	...	...	16
379	315	195	155	126	65	47	73	1,355

XXIV.								
62	80	62	18	18	...	9	...	249
55	132	33	33	22	22	22	22	341
17	6	...	...	6	6	...	...	35
...	...	...	...	...	...	...	...	...
...	...	...	...	13	...	...	...	13
42	34	17	25	34	...	...	8	160
...	...	..	..	...	...	..	...	...
50	67	34	59	17	...	17	8	252
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
719	774	403	272	164	98	44	55	2,529
21	19	10	21	...	...	10	..	72
10	38	28	28	10	...	9	19	142
28	...	...	...	...	...	...	...	28
36	18	9	27	9	9	9	...	117
93	113	72	51	10	31	21	31	422
29	9	49	20	20	...	...	20	147
334	247	193	124	74	37	12	49	1,075
		...						
7	10	10	29	...	10	...	10	69
23	11	11	...	...	...	...	...	45
34	...	25	...	8	25	...	...	92
54	97	21	32	43	...	...	...	247
91	40	71	10	31	10	10	10	273
115	67	67	...	19	29	19	19	335
90	45	22	22	34	45	...	34	292
34	8	34	...	...	...	...	8	84
18	18	...	...	9	...	...	...	45
...	11	10	...	...	...	11	33	65
10	...	...	10	...	19	...	19	58
23	15	...	7	7	...	23	23	98
31	31	31	...	...	...	...	...	93
26	...	13	13	13	...	...	...	65
8	71	45	9	44	9	...	18	285
105	23	...	23	12	23	...	...	186
221	79	71	62	17	9	9	...	468
35	27	9	26	26	18	18	...	159
201	106	12	35	35	12	12	12	425
83	71	60	83	24	...	12	...	333
63	32	21	32	10	11	...	21	190
XXV.								
...	13	...	27	14	14	14	14	96
12	12	37	...	37	12	...	12	122
52	42	21	21	42	21	21	11	231
17	25	9	17	42	9	8	8	135
...	...	...	...	...	...	...	9	9
36	62	27	44	...	27	9	9	214
...	...	...	...	...	...	...	...	...
10	...	...	20	...	...	...	...	30
19	10	...	9	...	...	9	19	66
...	22	34	...	34	...	34	...	124
...	...	...	...	...	...	...	...	...
...	...	13	...	...	...	...	...	13
17	...	17	52	...	...	...	...	86
...	...	...	...	...	...	...	...	...
10	10	10	10	10	...	...	30	80
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	9	...	18	...	...	...	...	27
94	53	52	...	11	21	10	10	251
31	31	11	10	10	...	...	...	93
83	21	10	10	21	...	...	...	145
44	9	...	9	...	...	...	...	62
17	17	9	9	9	8	...	8	77
98	49	57	98	74	33	16	66	491
30	50	20	30	40	20	30	40	260
...	20	...	...	29	...	...	20	69
113	181	90	45	68	56	45	34	632
255	277	133	89	78	33	...	22	887
37	37	9	18	...	...	...	9	110
75	38	...	19	19	...	...	...	151
3,902	3,278	2,026	1,597	1,277	667	473	730	13,950

								Block
								Womb.
1	4	1	...	...	...	...	...	6
12	4	10	8	2	3	1	1	41
12	11	13	12	6	5	2	6	67
10	11	7	7	3	5	1	...	44
24	12	18	14	14	9	5	6	102
58	29	27	13	12	12	12	7	170
11	5	11	3	4	3	1	2	40
1	2	2	3	1	...	1	...	10
5	4	4	1	...	1	1	...	16
6	1	2	1	1	1	...	...	12
...	...	...	...	...	...	...	...	...
9	8	9	10	3	1	...	...	40
7	7	8	2	10	2	3	2	41
7	1	6	2	3	4	1	1	25
10	4	1	4	2	2	1	2	26
14	5	3	1	3	2	...	...	28
13	9	4	1	3	2	...	3	35
19	19	12	5	1	3	...	2	61
			Not	enumerated	separately.			
25	16	11	7	9	2	4	1	75
24	16	9	5	10	7	2	3	76
17	7	14	10	1	2	2	...	53
6	2	2	1	2	...	...	...	13
4	4	3	1	...	1	...	1	14
9	1	1	2	1	...	...	...	14
22	9	8	8	6	3	3	3	62
6	6	2	1	4	2	...	1	22
62	16	9	5	4	3	2	...	101
23	3	6	1	...	2	...	...	35
6	2	3	1	...	1	...	...	13
23	5	1	6	3	4	1	...	43
33	12	7	5	2	1	...	1	61
19	4	7	3	3	3	...	2	41
5	3	...	1	1	...	3	3	16
2	2	2	3	...	...	...	...	9
9	1	1	3	1	1	1	...	17
...	...	...	...	...	...	...	...	...
4	2	2	1	...	...	...	...	9
8	6	2	2	2	...	2	1	23
5	3	4	4	2	2	1	1	22
								Block
9	8	3	6	2	3	2	3	36
32	22	11	11	6	14	4	9	109
14	6	6	4	3	1	1	1	36
9	5	2	2	1	...	1	...	20
60	38	16	14	7	8	4	4	151
19	5	2	2	1	...	1	...	30
80	58	38	26	24	9	6	10	251
15	17	13	7	11	11	4	5	83
30	11	10	5	4	1	3	5	69
3	3	5	3	4	2	...	...	20
47	3	12	6	10	5	3	5	101
26	13	2	4	1	1	1	1	49
3	1	1	4	2	...	...	...	11
11	2	1	2	4	4	2	...	26
1	1	1	1	...	1	1	...	6
9	1	1	4	3	...	...	2	20
4	3	4	4	1	1	1	...	18
32	20	13	6	2	...	1	...	74
7	3	3	2	...	...	...	...	15
1	3	4	...	...	1	...	...	9
14	5	4	2	4	2	1	...	32
20	17	19	9	8	8	...	1	82
8	3	3	3	1	2	2	1	23
8	2	6	1	...	...	...	...	17
6	1	...	2	1	1	...	...	11
6	5	3	10	...	...	1	...	25
28	18	17	18	18	10	4	3	116
4	4	2	...	...	...	...	...	10
15	9	9	3	3	1	3	1	44
19	13	4	2	1	...	...	...	39
1,071	566	447	320	241	175	96	100	3,016

XXIV.								
9	35	9	...	...	...	...	...	53
132	44	110	88	22	33	11	11	451
68	62	73	68	34	28	11	34	378
109	119	76	76	33	54	11	...	478
157	79	118	92	92	59	33	39	669
488	244	227	109	101	101	101	59	1,430
133	60	133	36	48	36	12	24	482
8	17	17	25	8	...	8	...	83
53	42	42	11	...	11	11	...	170
58	10	19	10	10	10	...	...	117
...	...	...	...	—	...	...	...	...
93	83	93	104	31	10	...	...	414
66	66	76	19	95	19	28	19	388
66	9	57	19	28	38	10	10	237
89	36	9	36	18	18	9	18	233
144	51	31	10	31	21	...	...	288
128	88	39	10	29	20	...	29	343
235	235	148	62	12	37	...	25	754
239	153	105	67	86	19	38	10	717
273	182	103	57	114	80	23	34	866
142	59	117	84	8	17	17	...	444
65	21	21	11	21	...	...	...	139
40	40	31	10	...	10	...	10	141
86	10	10	19	10	...	...	...	135
247	101	90	90	67	33	34	34	696
50	51	17	8	34	17	...	8	185
565	146	82	46	37	27	18	...	921
250	32	65	11	...	22	...	...	380
57	19	29	10	...	10	...	...	125
173	38	7	45	23	30	7	...	323
342	125	73	52	21	10	...	10	633
246	52	91	39	39	39	...	26	532
44	27	...	9	9	...	26	27	142
23	23	23	35	...	...	...	...	104
79	9	9	26	9	9	9	...	150
...	...	...	...	...	...	...	...	...
47	24	23	12	...	...	...	...	106
95	71	24	24	24	...	24	12	274
53	32	42	42	21	21	11	11	233
XXV.								
124	110	41	82	28	41	27	41	494
389	268	134	134	73	170	49	110	1,327
147	63	63	42	32	11	10	10	378
76	42	17	17	9	...	8	...	169
562	356	150	131	65	75	37	37	1,413
170	44	18	18	9	...	9	...	268
812	589	386	264	244	91	61	101	2,548
152	172	132	71	112	112	40	50	841
255	104	95	48	38	9	28	47	654
34	34	56	34	45	22	...	...	225
397	110	101	51	85	42	25	42	853
333	167	25	51	13	13	13	13	628
52	17	17	69	34	...	...	...	189
108	20	10	19	39	39	10	...	254
10	10	10	10	...	10	19	...	60
108	12	12	48	36	...	...	24	240
41	31	41	41	10	10	10	...	184
294	183	119	55	18	...	9	...	678
73	31	31	21	...	...	...	...	156
11	31	41	...	...	10	...	...	93
145	52	42	21	41	21	10	...	332
176	150	167	79	71	70		9	722
69	26	26	26	9	17	17	8	198
66	16	49	8	...	...	...	...	139
60	10	...	20	10	10	...	...	110
59	49	30	98	...	...	10	...	246
317	203	192	203	203	113	45	34	1,310
44	44	22	...	...	...	...	...	110
138	83	83	28	27	9	27	9	404
179	123	38	19	9	...	...	...	368
10,583	5,645	4,387	3,180	2,375	1,734	916	985	29,805

								Block *Khar*
...	1	...	...	...	...	...	1	2
...	...	...	...	...	...	...	...	...
29	22	8	4	2	1	...	...	66
17	8	4	3	1	...	...	...	33
17	12	9	2	2	1	...	...	43
19	10	8	2	...	1	...	...	40
15	6	1	3	...	...	1	...	26
5	3	3	1	...	...	...	...	12
4	3	1	...	...	...	3	...	11
2	4	4	2	...	...	...	...	12
...	...	...	...	...	...	...	...	...
1	6	4	...	...	...	...	...	11
19	7	5	3	...	...	...	...	34
7	5	2	1	...	...	...	...	15
14	11	6	3	1	...	...	...	35
4	1	1	...	...	...	1	...	7
2	7	2	...	...	...	...	...	11
14	5	5	...	4	1	...	...	29
	Not enumerated separately.							
3	4	9	...	...	...	...	...	16
5	3	1	...	...	...	...	1	10
6	19	4	...	...	1	...	...	30
6	5	1	1	3	...	...	...	16
5	5	3	1	...	...	...	...	14
4	3	3	...	...	...	...	...	10
1	2	2	2	...	...	...	...	7
9	12	7	2	1	...	...	...	31
16	19	7	3	2	2	1	...	50
7	7	2	3	...	...	...	2	21
14	9	7	6	...	...	...	...	36
...	1	2	...	...	...	...	...	3
...	3	...	...	1	...	...	...	4
7	5	1	1	...	...	...	...	14
2	...	...	...	...	...	...	1	3
4	...	2	...	...	...	...	1	7
2	...	1	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	1	1	...	...	...	...	2
11	3	...	1	2	...	...	...	17
								Block
14	3	2	...	...	...	...	...	19
10	7	1	...	...	...	...	...	18
8	5	1	...	...	...	...	...	14
5	...	1	...	...	...	...	...	6
14	22	20	8	3	2	...	2	71
4	4	1	...	1	...	...	...	10
34	52	8	8	6	3	...	...	131
18	14	22	7	1	2	...	...	54
17	9	16	2	1	1	...	...	36
14	7	6	...	1	...	...	...	28
30	13	8	1	...	1	1	...	54
3	6	...	...	...	1	1	...	11
...	4	3	...	1	...	...	...	8
2	8	5	2	...	...	1	...	18
...	1	3	...	...	1	...	...	5
7	4	2	3	1	..	1	...	18
5	2	2	1	...	1	...	...	11
12	5	2	...	...	...	...	...	19
...	...	...	...	...	...	...	...	...
...	1	...	1	...	...	...	...	2
4	...	...	...	...	...	...	...	4
4	3	4	1	...	...	...	...	12
1	...	2	...	2	...	...	...	5
...	...	...	...	...	...	...	1	1
...	1	...	...	...	...	...	...	1
3	1	...	1	1	...	...	...	6
4	2	4	...	...	...	...	...	10
...	1	1	...	...	...	...	...	2
2	1	...	...	...	...	...	...	3
39	22	4	3	1	...	1	1	71
425	409	234	83	38	19	11	10	229

XXIV.								
sing								
...	9	...	...	...	...	...	9	18
...	...	...	...	...	...	...	...	...
163	124	45	23	11	6	...	...	372
185	87	48	33	11	...	...	...	359
111	79	59	13	13	7	...	...	282
160	84	67	17	...	8	...	...	336
181	73	12	36	...	...	12	...	314
42	25	25	8	...	...	...	...	100
42	32	11	...	...	...	32	...	117
19	39	39	19	...	...	...	...	116
...	...	...	...	...	...	...	...	...
10	62	42	...	...	...	...	...	114
180	66	47	28	...	...	...	...	321
66	47	19	10	...	...	...	...	142
125	98	53	27	9	...	...	...	312
41	10	10	...	...	...	10	...	71
20	69	19	...	...	...	...	...	108
173	62	62	...	49	12	...	...	358
29	38	86	...	...	...	...	...	153
57	34	11	...	...	...	...	11	113
50	159	34	...	...	8	...	...	251
65	53	11	11	32	...	...	...	172
51	51	31	10	...	...	...	...	143
38	29	29	...	...	...	...	...	96
11	23	22	22	...	...	...	...	78
76	101	59	17	8	...	...	...	261
146	173	64	27	18	18	9	...	455
76	76	22	32	...	...	...	22	228
134	86	67	57	...	...	...	...	344
...	8	15	...	...	...	...	...	23
...	31	...	...	10	...	...	...	41
91	65	13	13	...	...	...	...	182
18	...	...	...	...	...	...	9	27
46	...	23	...	...	...	..	12	81
18	...	9	...	...	...	...	...	27
...	...	...	...	...	...	...	...	..
...	...	...	...	...	...	...	...	...
...	...	12	12	...	...	...	...	24
116	32	...	11	21	...	...	...	180
XXV.								
192	41	27	...	...	...	...	...	260
122	85	12	...	...	...	...	...	219
84	52	11	...	...	...	...	...	147
42	...	8	...	...	...	...	...	50
131	206	187	75	28	19	...	19	665
36	36	9	...	9	...	...	...	90
345	528	284	81	61	31	...	...	1,330
182	142	122	71	10	20	...	...	547
161	85	57	19	10	9	...	...	341
158	79	68	...	11	...	...	...	316
253	110	68	9	...	8	8	...	456
38	77	...	...	...	13	13	...	141
...	69	52	...	17	...	...	...	138
20	78	49	19	...	...	10	...	176
...	10	30	...	...	10	...	...	50
84	48	24	36	12	...	12	...	216
51	21	21	10	...	10	...	...	113
110	46	18	...	...	...	...	...	174
...	...	...	...	...	...	...	...	...
...	10	...	10	...	...	...	...	20
41	...	...	...	...	...	...	...	41
35	26	35	9	...	...	...	...	105
9	...	17	...	17	...	...	...	43
...	...	...	...	...	...	...	8	8
...	10	...	...	...	...	...	...	10
29	10	...	10	10	...	...	...	59
45	23	45	...	...	...	...	...	113
...	11	11	....	...	...	...	...	22
18	9	...	...	...	...	...	...	27
368	208	38	28	9	...	9	9	669
5,094	3,945	2,254	803	376	179	115	99	12,865

Valuation Survey Notes, Block XXIV, Compartments 1 to 40

Name of Village.	Compartment Number.	Compartment area in acres.	Test plot area in acres.	Trees in the Test Plot.								
				7" 0"	10"	10"	10"	15"	15"	20"	20"	25"
1	2	3										
												Block
												Bha
Kodalgadda and Mavinmani ...	1	426·4		5	3	1	6	1	...	...	...	16
Do. do. ...	2	655·2		8	6	8	5	3	...	4	...	34
Kodadlgadda	3	276·8		...	...	...	...	...	...	...	...	...
Do. and Mavinmani ...	4	674·4		...	2	...	...	1	...	...	...	3
Kodalgadda	5	382·8		...	...	...	...	...	...	...	...	...
Do.	6	554·8		...	1	2	...	...	...	...	...	3
Do. and Mavinmani ...	7	674·8		...	...	...	...	...	...	...	...	...
Do. do. ...	8	620·0		2	4	1	2	...	...	...	1	10
Do. Mavinmani and Sunksal.	9	618·0		...	1	...	1	...	...	...	...	2
Do. do. do. ...	10	516·4		...	...	...	...	...	...	...	...	...
Mavinmani	11	480·8		42	35	18	17	8	8	7	5	140
Do. and Sunksal ...	12	618·0		6	8	6	8	3	4	3	3	41
Do. do. ...	13	893·6		...	...	1	1	1	...	...	1	4
Sunksal	14	344·4		2	2	1	...	...	...	...	...	5
Do.	15	424·8		...	....	...	...	...	...	...	...	...
Do.	16	524·4		...	...	...	...	...	...	...	...	...
Do. and Kalinhakal ...	17	429·2		...	...	...	...	...	...	...	...	...
Kalinhakal	18	719·6		1	2	...	...	...	...	...	...	3
Kodalgadda	19	737·2		Not enumerated separately.								
Sunksal	20	729·2		10	4	1	8	3	3	...	...	29
Do.	21	759·0		...	...	...	...	...	...	...	...	...
Hebbul	22	633·2		...	...	...	...	...	...	...	...	...
Do.	23	736·4		4	6	7	4	2	...	1	...	24
Do.	24	730·4		4	7	1	2	...	...	...	...	14
Sunksal and Katinhakal ...	25	585·6		...	...	...	...	...	...	...	...	...
Sunksal and Hebul ...	26	798·0		2	5	...	1	...	...	...	...	8
Hebbul and Kavlalli... ...	27	467·2		...	...	...	...	...	...	...	...	...
Do. do. ...	28	577 2		6	2	...	3	...	1	1	...	13
Kavlalli	29	566·4		4	4	1	1	1	...	...	1	12
Do.	30	614·8		2	1	3	...	1	...	...	...	7
Do.	31	392·0		1	...	...	1	1	...	1	...	4
Do.	32	765·6		3	3	...	3	1	1	...	1	12
Do.	33	750·8		...	...	...	...	...	...	...	...	...
Do.	34	566·8		15	14	9	13	8	13	6	19	97
Makigadda and Agsur ...	35	578·2		...	...	...	...	...	2	1	...	3
Do. and Kavlalli ...	36	612·4		23	22	18	13	9	9	5	5	104
Do. and Marugadda ..	37	500·0		12	17	23	21	12	13	9	18	125
Do. Kavlalli and Marugadda.	38	585·6		8	9	6	7	5	7	3	1	46
	39	910·4		11	7	5	10	7	5	...	1	46
	40	666·0		17	26	13	18	7	4	3	6	94
Total ...		24,096·8										Block
Shevkar	41	442·8		5	4	7	2	1	...	1	...	20
Shevkar and Heggar... ...	42	610 0		...	1	2	2	...	1	...	...	6
Heggar	43	706·0		4	4	5	2	...	2	3	3	23
Heggar and Kalleshwar ...	44	562·8		1	...	1	...	...	...	...	...	2
Kalleshwar and Halvalli ...	45	775·0		...	...	...	...	...	...	...	...	...
Kalleshwar	46	553·2		1	...	2	1	1	2	...	1	8
Kalleshwar and Halvalli ...	47	740·0		...	...	...	...	...	...	...	...	...
Halvalli	48	605·2		3	1	2	...	1	...	...	...	7
Halvalli, Kalleshwar and Muski...	49	798·0		...	...	...	...	...	...	...	...	...
Halvalll and Kammani ...	50	667·6		2	...	3	1	2	1	1	...	10
Halvalli	51	694·8		...	...	...	...	...	...	...	...	...
Do. and Dongri... ...	52	657·6		...	...	...	...	...	...	...	...	...
Do. do.	53	730·0		...	...	...	...	...	...	...	...	...
Do. do.	54	590·0		...	...	...	...	...	...	...	...	...
Dongri	55	642·8		1	...	...	...	...	...	...	...	1
Do.	56	793·2		1	...	...	...	...	...	...	...	4
Do.	57	792·4		...	...	...	...	...	...	...	...	...
Do.	58	624·4		1	1	...	1	...	1	1	...	3
Do.	59	720·8		1	...	...	...	...	...	...	...	1
Do. and Kuntgani ...	60	732·8		...	...	...	...	...	...	...	...	...
Do. do.	61	656·8		...	...	...	...	...	...	...	...	...
Kuntgani and Hillur... ...	62	634·4		1	2	2	...	...	...	...	...	5
Kuntgani	63	542·4		...	...	1	1	...	...	...	...	2
Do.	64	641·2		...	...	...	...	...	...	...	...	...
Kuntgani and Manigadda ...	65	729·2		15	3	13	3	1	...	1	...	36
Knntgani	66	959·2		9	4	3	4	4	1	1	...	26
Do. and Hillur	67	1,210·0		34	29	21	10	15	12	4	2	127
Do. do.	68	644·0		34	33	17	12	6	2	5	5	114
Hillur	69	794·4		8	5	1	...	1	...	...	...	15
Do.	70	659·2		5	3	4	5	7	4	3	1	32
Total ...		20,910·2		39	22	4	3	1	...	1	1	71
Grand Total ...		45,007·0		352	304	214	192	115	96	67	75	1,415

IV *a.*

and Block XXV, Compartments 41 to 70, Ankola High Forest.

Trees in the compartment.										Ratio.	
7″—9″	10″—12″	13″—15″	16″—18″	19″—21″	22″—24″	25″—27″	28″—?	Total.			
								22	23	24	
XXIV.											
rangi.											
44	27	9	53	9	...	...	...	142			
88	66	88	55	33	...	44	...	374	23,891		8·855
...	...	...	...	...	...	...	...	...	23,223		10·975
...	22	...	...	11	...	...	...	33	3,555		5·626
...	...	...	...	...	...	...	...	...	13,097		10·86
...	8	17	...	...	...	...	...	25	5,869		6·543
...	...	...	...	...	...	...	...	...	7,835		8·406
17	34	8	17	...	...	...	8	84	12,431		12·093
...	11	...	11	...	...	...	...	22	16,249		8·401
...	...	...	...	...	...	...	...	...	16,809		10·618
458	382	196	185	87	87	76	55	1,526	8,597		9·725
62	83	62	83	31	41	31	31	424	44,938		10·902
...	...	9	10	9	...	...	10	38	20,070		10·351
19	19	9	...	...	...	...	...	47	18,298		9·456
...	...	...	...	...	...	...	...	...	6,148		9·487
...	...	...	...	...	...	...	...	...	7,534		8·9 5
...	...	...	...	...	...	...	...	...	12,616		10 282
12	25	...	...	...	...	...	...	37	10,848		9·8
									18,459		12·364
96	38	10	77	29	29	...	...	279	11,057		19·098
...	...	...	...	...	...	...	...	...	13,838		9·57
...	...	...	...	...	...	...	...	...	15,315		11·396
43	65	75	43	21	...	11	...	258	16,448		8·375
40	71	10	20	...	...	...	...	141	21,435		10·766
...	...	...	...	...	...	...	...	...	21,719		10·144
22	56	...	11	...	...	...	...	89	17,931		9·615
...	...	...	...	...	...	...	...	...	24,578		11·223
55	18	...	27	...	9	9	...	118	14,193		8·418
43	43	11	11	11	...	...	11	130	16,276		9·118
19	10	29	...	10	...	...	...	68	20,984		10·850
7	...	...	8	7	...	8	...	30	13,636		9·576
31	31	...	31	11	10	...	10	124	12,067		7·509
...	...	...	...	...	...	...	...	...	33,134		10·374
134	125	80	116	71	116	53	169	864	16,558		12·967
...	...	...	...	...	23	12	...	35	28,206		8·912
203	194	159	115	80	80	44	44	919	9,938		11·610
107	150	204	186	106	115	80	160	1,108	23,091		8·837
95	106	71	83	59	83	35	12	544	20,992		8·865
131	83	60	119	83	60	...	12	548	26,215		11·83
180	275	137	190	74	42	32	64	994	59,809		11·9
									46,364		10·571
XXV.											
69	55	96	27	14	...	14	...	275			
...	12	25	24	...	12	...	...	73	14,938		13·73
42	42	53	21	...	21	32	31	242	12,102		12·175
9	...	8	...	...	...	...	...	17	21,611		10·506
...	...	...	...	...	...	...	...	...	10,814		8·469
9	...	18	9	9	18	...	9	72	13,319		9·36
...	...	...	...	...	...	...	...	...	12,672		8·93
30	10	20	...	10	...	...	...	70	18,342		10·151
...	...	...	...	...	...	...	...	...	9,630		10·137
23	...	34	11	23	11	11	...	113	13,646		9·483
...	...	...	...	...	...	...	...	...	20,875		11·296
...	...	...	...	...	...	...	...	...	12,272		8·452
...	...	...	...	...	...	...	...	...	15,585		12·818
10	...	...	...	...	...	...	...	...	13,132		17·257
10	10	...	10	...	...	10	...	40	11,427		9·784
...	...	...	...	...	...	...	...	...	19,603		10·012
...	...	10	...	...	10	10	...	30	16,166		12·019
9	...	...	...	...	...	...	...	9	22,342		10·277
...	11	...	...	...	...	10	...	21	16,979		9·168
...	...	...	...	...	...	...	...	...	29,290		10·491
...	...	...	...	10	...	...	...	10	22,946		10·350
9	18	17	...	...	...	...	...	44	17,577		10·376
...	...	9	8	...	...	...	...	17	14,580		8·81
123	25	106	25	8	...	8	...	295	12,483		8·609
89	40	30	40	40	10	10	...	259	27,728		8·189
334	285	207	98	148	118	39	20	1,249	36,377		9 961
384	373	192	136	68	23	56	56	1,288	45,638		9·838
89	55	11	...	11	...	...	...	166	54,128		11·298
46	28	37	46	64	37	27	9	294	28,355		11·085
368	208	38	28	9	...	9	9	669	23,322		9·194
									26,451		9·430
3,559	3,114	2,155	1,934	1,156	955	671	720	14,264	13,71,531		

Valuation Survey Notes, Block XXIV, Compartments 1 to 40

Name of Village.	Compartment Number.	Compartment area in acres.	Test plot area in acres.	Trees in the Test Plot.								
				7" 0"	10"	10"	10"	15"	10"	10"	0"	0"
1	2	3										
												BLOCK
												Jungle
Kodalgadda and Mavinmani ...	1	426·4		1,617	559	270	124	48	38	18	24	2,698
Do. do. ...	2	655·2		1,229	424	210	110	54	37	15	37	2,116
Kodadlgadda	3	276·8		195	119	109	53	51	30	18	57	632
Do. and Mavinmani ...	4	674·4		458	249	185	117	80	51	26	40	1,206
Kodalgadda	5	382·8		287	204	120	101	69	49	23	44	897
Do.	6	554·8		319	173	147	68	65	46	28	86	932
Do. and Mavinmani ...	7	674·8		315	256	187	110	60	55	20	25	1,028
Do. do. ...	8	620·0		773	443	342	166	89	52	30	39	1,934
Do. Mavinmani and Sunksal.	9	618·0		629	417	230	129	87	52	20	19	1,583
Do. do. do. ...	10	516·4		245	187	138	106	90	58	25	35	884
Mavinmani	11	480·8		2,683	826	303	144	57	41	21	47	4,122
Do. and Sunksal ...	12	618·0		866	468	276	156	62	57	30	24	1,939
Do. do. ...	13	893·6		816	423	296	168	81	52	42	57	1,935
Sunksal	14	344·4		208	130	111	69	42	42	17	29	648
Do.	15	424·8		248	188	132	92	52	46	31	57	846
Do.	16	524·4		490	282	184	108	60	44	23	36	1,227
Do. and Kalinhakal ...	17	429·2		329	240	158	135	95	61	34	55	1,107
Kalinhakal	18	719·6		551	343	244	118	89	58	32	58	1,493
Kodalgadda	19	737·2		125	113	89	74	51	37	90	...	579
Sunksal	20	729·2		521	311	211	130	89	85	44	55	1,446
Do.	21	759·0		430	298	200	148	89	62	36	81	1,344
Hebbul	22	633·2		719	473	308	181	107	67	52	57	1,964
Do.	23	736·4		762	445	301	175	129	83	41	55	1,991
Do.	24	730·4		838	507	298	208	126	74	47	43	2,141
Sunksal and Katinhakal ...	25	585·6		732	422	264	147	92	59	49	100	1,865
Sunksal and Hebul ...	26	798·0		888	487	269	202	134	65	51	94	2,190
Hebbul and Kavlalli... ...	27	467·2		768	361	202	119	86	50	28	72	1,686
Do. do. ...	28	577 2		604	404	258	168	102	74	66	109	1,785
Kavlalli	29	566·4		740	427	239	170	95	92	53	118	1,934
Do.	30	614·8		517	295	191	129	91	68	44	89	1,424
Do.	31	392·0		531	341	268	193	100	71	37	66	1.607
Do.	32	765·6		1,489	660	380	210	145	79	70	161	3,194
Do.	33	750·8		392	260	206	176	85	59	29	70	1,277
Do.	34	566·8		1,477	608	382	253	152	99	67	127	3,165
Makigadda and Agsur ...	35	578·2		389	169	110	72	39	36	15	26	856
Do. and Kavlalli ...	36	612·4		1,378	581	297	154	73	58	27	45	2,613
Do. and Marugadda ..	37	500·0		1,074	534	313	156	94	76	36	85	2,368
Do. Kavlalli and Marugadda.	38	585·6		1,215	519	223	110	51	42	22	34	2,216
	39	910·4		2,746	999	491	262	164	128	70	166	5,026
	40	666·0		2,521	854	434	206	119	90	62	100	4,386
Total ...		24,096·8										BLOCK
Shevkar	41	442·8		442	221	161	96	71	38	15	44	1,088
Shevkar and Heggar... ...	42	610 0		324	213	153	101	61	45	31	66	994
Heggar	43	706·0		776	518	317	182	110	65	35	54	2,057
Heggar and Kalleshwar ...	44	562·8		448	281	184	116	79	65	36	68	1,277
Kalleshwar and Halvalli ...	45	775·0		533	274	190	132	82	64	51	97	1,423
Kalleshwar	46	553·2		522	311	206	128	82	64	49	57	1,419
Kalleshwar and Halvalli ...	47	740·0		714	393	244	149	79	75	43	110	1,807
Halvalli	48	605·2		346	162	147	80	63	54	23	75	950
Halvalli, Kalleshwar and Muski...	49	798·0		373	312	249	156	125	83	48	93	1,439
Halvalli and Kammani ...	50	667·6		666	437	277	162	118	68	47	73	1,848
Halvalli	51	694·3		678	280	166	108	62	45	36	77	1,452
Do. and Dongri... ...	52	657·6		400	327	229	111	58	41	22	17	1,212
Do. do.	53	730·0		242	172	110	90	62	46	23	16	761
Do. do.	54	590·0		388	291	199	102	73	46	24	45	1,168
Dongri	55	642·8		780	506	328	147	80	51	29	37	1,958
Do.	56	793·2		463	281	205	159	90	59	44	44	1,345
Do.	57	792·4		867	510	332	195	99	71	48	52	2,174
Do.	58	624·4		831	443	263	145	63	40	35	32	1,852
Do.	59	720·8		1,505	727	303	151	57	25	8	16	2,792
Do. and Kuntgani ...	60	732·8		882	568	377	195	80	57	30	28	2,217
Do. do.	61	656·8		759	405	234	129	77	39	23	28	1,694
Kuntgani and Hillur... ...	62	634·4		642	357	245	161	109	62	40	39	1,655
Kuntgani	63	542·4		594	317	195	132	75	72	31	34	1,450
Do.	64	641·2		1,678	725	433	239	133	77	47	54	3,386
Kuntgani and Manigadda ...	65	729·2		1,780	823	457	255	140	74	53	63	3,652
Kuntgani	66	959·2		2,445	874	497	285	142	120	94	182	4,639
Do. and Hillur	67	1,210·0		2,250	1,051	611	335	209	132	85	118	4,791
Do. do.	68	644·0		1,419	551	238	139	67	53	28	63	2,558
Hillur	69	794·4		1,337	534	365	224	132	89	65	117	2,863
Do, ...	70	659·2		1,483	574	356	174	87	66	28	37	2,805
Total ..		20,910·2		59,681	29,437	17,847	10,502	6,216	4,309	2,660	4,358	1,35,010
Grand Total ...		45,007·0										

IV *a.*

and Block XXV, Compartments 41 to 70, Ankola High Forest.

Trees in the compartment.										Ratio.
7″—9″	10″—12″	13″—15″	16″—18″	19″—21″	22″—24″	25″—27″	28″—?	Total.		
14	15	16	17	18	19	20	21	22	23	24
XXIV.										
wood.										
14,319	4,950	2,391	1,098	425	336	159	213	23,891		8·855
13,488	4,653	2,305	1,207	593	406	165	406	23,223		10·975
1,097	669	613	298	287	169	101	321	3,555		5·626
4,974	2,704	2,009	1,271	869	554	282	434	13,097		10·86
1,878	1,335	785	661	451	321	150	288	5,869		6·543
2,682	1,454	1,236	572	546	387	235	723	7,835		8·406
3,809	3,096	2,261	1,330	726	665	242	302	12,431		12·093
6,494	3,722	2,873	1,395	748	437	252	328	16,249		8·401
6,679	4,428	2,442	1,370	924	552	212	202	16,809		10·618
2,383	1,819	1,342	1,031	875	564	243	340	8,597		9·725
29,250	9,005	3,303	1,570	622	447	229	512	44,938		10·902
8,964	4,844	2,857	1,615	642	590	310	248	20,070		10·351
7,716	4,000	2,799	1,589	766	492	397	539	18,298		9·456
1,973	1,233	1,053	655	399	399	161	275	6,148		9·487
2,209	1,674	1,175	819	463	410	276	508	7,534		8·965
5,038	2,900	1,892	1,111	617	452	236	370	12,616		10 282
3,224	2,362	1,548	1,323	931	598	333	539	10,848		9·8
6,812	4,241	3,017	1,459	1,100	717	396	717	18,459		12·364
2,387	2,158	1,699	1,413	974	707	1,719	...	11,057		19·093
4,986	2,976	2,019	1,244	852	814	421	526	13,838		9·57
4,900	3,396	2,279	1,687	1,014	706	410	923	15,315		11·396
6,022	3,961	2,580	1,516	896	561	436	476	16,448		8·375
8,204	4,791	3,240	1,884	1,389	894	441	592	21,435		10·766
8,501	5,143	3,023	2,110	1,278	751	477	436	21,719		10·144
7,038	4,058	2,538	1,413	885	567	471	961	17,931		9·615
9,966	5,466	3,019	2,267	1,504	729	572	1,055	24,578		11·223
6,465	3,039	1,700	1,002	724	421	236	606	14,193		8·418
5,507	3,684	2,352	1,532	930	675	602	994	16,276		9·118
6,029	4,633	2,593	1,845	1,031	998	575	1,280	20,984		10·850
4,951	2,825	1,829	1,235	872	651	421	852	13,636		9·576
3,987	2,561	2,012	1,449	751	533	278	496	12,067		7·509
15,447	6,847	3,942	2,178	1,504	820	726	1,670	33,134		10·374
5,033	3,371	2,671	2,282	1,102	765	376	908	16,558		12·967
13,163	5,418	3,404	2,255	1,355	882	597	1,132	28,206		8·912
4,516	1,962	1,277	836	453	418	174	302	9,938		11·610
12,177	5,134	2,625	1,361	645	512	239	398	23,091		8·837
9,521	4,734	2,775	1,383	833	674	319	753	20,992		8·865
14,374	6,140	2,638	1,301	603	497	260	402	26,215		11·83
32,677	11,888	5,843	3,118	1,952	1,523	833	1,975	59,809		11·9
26,649	9,028	4,588	2,178	1,258	951	655	1,057	46,364		10·571
XXV.										
6,069	3,034	2,210	1,318	975	522	206	604	14,938		13·73
3,945	2,593	1,863	1,230	743	548	377	803	12,102		12·175
8,153	5,442	3,330	1,912	1,156	683	368	567	21,611		10·506
3,794	2,380	1,558	982	669	550	305	576	10,814		8·469
4,989	2,565	1,778	1,235	768	599	477	908	13,319		9·36
4,661	2,777	1,840	1,143	732	572	438	509	12,672		8·93
7,248	3,989	2,477	1,512	802	761	436	1,117	13,342		10·151
3,508	1,642	1,490	811	639	547	233	760	9,630		10·137
3,537	2,959	2,361	1,480	1,185	737	455	882	13,646		9·483
7,523	4,936	3,129	1,830	1,333	768	531	825	20,875		11·296
5,730	2,367	1,403	913	524	380	304	651	12,272		8·452
5,127	4,191	2,936	1,513	743	525	282	218	15,535		12·818
4,176	2,968	1,898	1,553	1,070	794	397	276	13,132		17·257
3,796	2,847	1,947	998	714	450	235	440	11,427		9·784
7,809	5,066	3,234	1,472	801	511	280	370	19,603		10·012
5,565	3,377	2,461	1,911	1,082	709	529	529	16,166		12·019
8,910	5,241	3,412	2,004	1,018	730	493	534	22,342		10·277
7,619	4,061	2,411	1,329	578	367	321	293	16,979		9·168
15,789	7,627	3,179	1,584	598	262	84	167	29,290		10·491
9,129	5,879	3,902	2,018	828	590	310	290	22,946		10·350
7,875	4,202	2,428	1,339	799	405	239	290	17,577		10·376
5,656	3,145	2,159	1,418	960	546	352	344	14,580		8·81
5,114	2,729	1,679	1,136	645	620	267	293	12,483		8·609
13,741	5,937	3,546	1,957	1,089	631	385	442	27,728		8·189
17,731	8,198	4,552	2,540	1,464	737	528	627	36,377		9 961
24,054	8,598	4,889	2,804	1,397	1,181	925	1,790	45,638		9·838
25,421	11,874	6,903	3,785	2,361	1,491	960	1,333	54,128		11·298
15,730	6,108	2,638	1,541	743	587	310	698	28,355		11·085
12,292	4,910	3,356	2,059	1,213	818	598	1,076	23,322		9·194
13,985	5,413	3,367	1,641	820	622	264	349	26,451		9·430
6,06,215	2,99,347	1,80,926	1,06,831	63,238	43,838	27,516	43,620	13,71,531		

APPENDIX IV*b*.

Estimated number of trees that will be available in each compartment for felling including those that come over from the penultimate class, minus deductions as per para. 48 of the Report.

Compartment No.	Compartment area.			1st quality.				2nd quality.				Remarks.
	1st class in acres.	2nd class in acres.	Total acres.	Matti.	Jamba.	Nana.	Kindal.	Matti.	Jamba.	Nana.	Kindal.	
1	...	426·4	426·4	...	...	...	...	172	18	30	124	*Note.*—These figures do not exactly tally with those given in the felling statement, para. 53 of the report, as the calculation here has been made for each compartment separately, whereas the figures in the plan are calculated according to the average of the compartment in the sub-period to which they belong.
2	376·4	278·8	655·2	94	24	14	136	130	87	29	174	
3	276·8	...	276 8	35	105	143	156	...	...	...	...	
4	674·4	...	674·4	245	69	32	336	...	...	...	...	
5	382·8	...	382·8	171	94	14	249	...	...	...	...	
6	554·8	...	554 8	356	367	185	572	...	...	...	...	
7	674·8	...	674·8	239	30	23	109	...	...	...	...	
8	620·0	...	620·0	191	26	25	186	...	...	...	...	
9	342·8	275·2	618·0	92	10	16	61	145	26	16	101	
10	413·6	102·8	516·4	97	62	53	157	48	36	27	74	
11	...	480·8	480·8	...	...	...	...	61	8	29	81	
12	362·0	256·0	618·0	38	6	5	92	65	15	25	126	
13	729·6	164·0	893·6	84	93	86	193	35	45	25	64	
14	344·4	...	344·4	281	80	66	178	...	...	...	...	
15	424·8	...	424·8	295	90	176	376	...	..	...	...	
16	524 4	...	524·4	398	92	40	266	...	...	...	...	
17	429·2	...	429·2	380	49	45	316	...	...	...	...	
18	719·6	...	719·6	412	23	160	590	...	...	...	...	
19	737·2	...	737·2	660	425	226	1,148	...	...	...	...	
20	729·2	...	729·2	430	206	113	583	...	...	...	...	
21	759·0	...	759·0	459	133	84	944	...	...	...	...	
22	633·2	...	633·2	108	57	88	557	...	...	...	...	
23	736·4	...	736·4	315	137	110	859	...	...	...	...	
24	730·4	...	730·4	276	120	71	273	...	...	...	...	
25	585 6	...	585·6	487	71	64	311	...	...	...	...	
26	798·0	...	798 0	279	169	219	1,061	...	...	...	...	
27	467·2	...	467·2	160	27	56	142	...	...	...	...	
28	577·2	...	577·2	156	157	171	356	...	...	...	...	
29	566 4	...	566·4	185	192	121	214	...	...	...	...	
30	614·8	...	614·8	81	63	59	222	...	...	...	...	
31	392·0	...	392·0	73	57	32	170	...	...	...	...	
32	765·6	...	765·6	79	435	454	405	...	...	...	...	
33	750·8	...	750·8	661	203	399	368	...	...	...	...	
34	566·8	...	566·8	147	127	106	433	...	...	...	...	
35	578·2	...	578·2	159	56	49	96	...	...	...	...	
36	350·0	262·4	612·4	147	42	84	156	133	49	90	141	
37	500 0	...	500·0	160	245	245	472	...	...	...	...	
38	390·4	195·2	585·6	246	83	54	142	149	61	34	94	
39	545·6	364·8	910·4	309	278	393	462	226	257	306	356	
40	666·0	...	666·0	435	406	205	556	...	...	...	...	
41	442·8	...	442·8	...	118	18	207	...	...	...	...	
42	610·0	...	610·0	157	292	168	702	...	...	...	...	
43	706·0	...	706·0	403	116	36	256	...	...	...	...	
44	562·8	...	562·8	231	117	69	318	...	...	...	...	
45	775 0	...	775·0	82	349	248	505	...	...	...	...	
46	553·2	...	553·2	135	201	68	472	...	...	...	...	
47	740·0	...	740·0	52	304	344	626	...	...	...	...	
48	605·2	...	605·2	107	274	399	549	...	...	...	...	
49	798·0	...	798·0	607	301	88	620	...	...	...	...	
50	...	667·6	667·6	...	...	...	...	654	335	115	754	
51	529·2	165·6	694·8	390	297	71	407	188	168	40	183	
52	309·6	348·0	657·6	208	83	47	62	382	174	77	118	
53	247·2	482·8	730·0	30	30	10	39	106	132	46	163	
54	424·0	166·0	590·0	134	68	41	309	76	68	24	166	
55	470·8	172·0	642·8	158	52	20	157	101	48	11	96	
56	317·2	476·0	793·2	192	45	20	89	437	132	59	218	
57	406·0	386·4	792·4	114	25	37	107	176	69	55	181	
58	472·8	151·6	624·4	150	17	2	84	84	18	2	54	
59	201·6	519·2	720·8	19	5	4	30	97	26	31	159	
60	384·0	348·8	732·8	134	27	6	44	207	52	15	75	
61	416·0	240·8	656·8	90	51	34	146	83	66	28	129	
62	634·4	...	634·4	122	208	114	360	...	...	...	...	
63	362·4	180·0	542·4	36	51	96	187	24	41	77	133	
64	196·8	444·4	641·2	16	9	49	34	67	43	139	110	
65	...	729·2	729·2	...	...	...	...	365	141	290	324	
66	806·0	153·2	959·2	187	293	431	479	50	80	106	115	
67	884·0	326·0	1,210·0	330	325	120	412	169	192	61	206	
68	...	644·0	644·0	...	...	...	...	56	62	126	157	
69	569·2	225·2	794·4	120	112	63	240	57	70	35	128	
70	272·0	387·2	659·2	108	5	20	43	213	14	38	83	
Total ...	34,986·6	10,020·4	45,007·0	13,732	8,684	7,109	20,887	4,756	2,533	1,986	4,887	

Kárwár, 10th November 1908.

R. S. PEARSON,
Divisional Forest Officer,
Working Plans, S. C.

APPENDIX V.

APPENDIX

Increment of Test Trees

BLOCKS

Compartment No.	Age in 5	10	15	20	25	30	35	40	45	50
	Diameter									
	MA									
30	1·9	4·2	5·6	7·0	8·0	8·8	9·4	10·1	10·6	11·4
29	·9	1·5	2·1	2·9	3·5	3·9	4·6	5·4	6·0	6·3
29	·8	1·4	2·2	2·9	3·4	3·8	4·2	4·7	5·2	5·9
32	1·4	2·8	3·6	4·4	5·1	5·6	6·4	6·9	7·2	7·4
32	·8	2·7	4·2	6·8	8·5	10·3	11·4	12·4	...	...
32	1·1	2·7	3·8	4·8	6·1	6·4	7·2	8·0	8·9	9·4
32	1·6	3·4	5·0	6·0	7·1	8·4	10·0	11·6	12·7	13·6
32	1·2	2·2	3·4	4·4	5·3	6·3	7·9	9·1	10·6	12·4
32	1·8	3·9	4·6	6·1	6·9	8·3	9·7	11·4	12·3	13·4
34	·5	1·3	1·8	2·5	3·2	3·8	4·4	4·9	5·5	6·2
34	1·3	2·1	2·7	3·3	3·6	4·2	4·7	5·4	6·3	6·8
34	·5	1·1	1·6	2·0	2·6	3·1	3·6	4·3	5·1	5·5
34	1·2	2·0	2·7	3·4	4·4	5·2	5·)	6·9	7·8	8·6
34	...	3·3	4·5	5·6	6·4	7·4	8·4	9·4	10·6	11·5
10	·7	1·6	2·2	3·1	3·9	4·9	5·7	6·3	6·9	7·3
10	·8	1·6	2·3	2·9	3·5	4·0	4·5	5·2	5·8	6·4
10	·7	1·7	2·4	3·4	4·1	4·9	5·8	6·1	7·5	8·1
10	1·0	1·9	2·8	3·6	5·0	6·0	7·0	8·3	9·9	11·2
10	·9	1·6	2·1	2·9	3·4	4·0	4·6	5·4	6·1	6·6
10	·9	1·9	2·9	3·7	4·0	5·0	5·7	6·5	7·1	7·8
26	·9	1·7	2·7	3·5	4·4	5·4	6·2	6·9	7·8	8·9
9	·8	1·3	2·1	2·9	3·5	4·1	5·2	6·1	7·2	8·2
22	·7	1·6	2·6	3·7	4·4	5·6	6·6	7·6	8·2	9·1
22	1·1	2·6	3·5	4·5	5·7	6·9	8·1	9·8	10·8	11·3
23	1·6	2·8	3·9	4·8	6·0	7·0	8·0	9·1	10·0	11·1
21	1·2	2·1	3·0	4·1	5·0	5·7	6·6	7·4	8·4	9·5
22	·7	1·8	2·4	3·2	3·8	4·5	5·3	5·8	6·5	7·2
22	·9	1·5	2·1	2·6	3·1	3·7	4·3	4·9	5·4	5·9
21	1·1	2·2	3·2	4·2	5·3	6·1	6·9	7·7	8·5	9·2
21	1·2	2·1	3·2	4·2	5·3	6·5	7·6	8·7	9·8	10·6
8	·6	1·6	2·6	3·1	3·9	5·1	6·3	7·1	7·9	8·9
8	·9	2·4	3·2	4·2	5·5	6·7	7·9	9·1	10·2	11·4
41	1·2	2·5	3·4	4·6	5·5	6·7	7·5	8·3	9·4	10·2
41	1·0	1·9	2·9	3·4	4·1	5·0	5·8	6·3	7·5	8·4
41	1·1	2·1	3·3	4·0	5·3	6·3	7·2	7·6	8·1	8·8
41	1·9	3·0	4·6	5·8	7·8	8·4	9·6	10·7	11·6	12·4
41	1·0	3·0	2·6	3·4	4·1	4·8	5·4	6·1	6·8	7·5
41	1·4	2·1	2·6	4·1	4·8	5·2	5·7	5·6	6·6	6·8
41	1·4	2·3	3·1	3·7	4·2	5·2	5·8	6·1	6·5	7·0
41	1·8	3·3	4·4	5·1	7·3	8·3	9·4	10·4	11·2	11·9
41	1·4	2·4	3·0	3·7	4·5	5·3	6·1	6·8	7·2	7·9
41	·9	1·5	1·9	2·7	3·4	3·9	4·5	5·2	6·4	7·6
41	·9	2·5	2·8	5·4	6·6	8·0	9·0	9·8	10·7	11·3
41	1·0	2·4	3·9	4·9	5·6	6·6	7·3	7·9	8·7	9·4
41	·8	1·5	2·4	3·1	3·6	4·4	5·2	5·9	7·0	7·9
41	1·7	2·2	3·0	4·1	5·2	6·1	7·2	8·4	9·5	10·8
41	1·4	2·1	2·9	3·4	4·1	4·6	5·4	6·1	7·1	7·8
66	·5	1·6	2·7	3·8	4·8	5·4	6·3	7·6	8·6	9·9
57	·7	1·7	3·3	4·4	5·6	6·7	7·5	8·3	9·8	11·7
Total ...	51·8	106·7	149·8	196·3	240·4	282·5	325·0	365·6	395·5	434·4
Averages	1·07	2·18	3·05	4·00	4·90	5·76	6·63	7·46	8·25	9·05
Period taken to pass from one 3" class to the next..		9 years.		17 years.			17 years.			

V.

for periods of 5 years.

XXIV & XXV.

year.

55	60	65	70	75	80	85	90	190	195	200

in inches.

TTI.										
12·3	13·0	13 9	14·4	14·8	15·2	15·7	16·3	...	...	...
7·0	7·7	8·5	9·6	10·5	11·1	11·9	12·6	25·1	26·0	27·1
7·1	7·5	8·1	8·8	9·3	9·7	10·3	11·1	21·7	21·9	22·3
7·8	8·2	8·7	9·7	10·8	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
10·3	11·6	12·4	13·2	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	..	...
14·1	16·0	17·4	18·3	...	...	...	...	...	...	...
14·4	15·9	16·9	...	...	..	...	...	..	...	...
6·8	7·4	7·9	8·5	9·3	9·8	10·4	10·9	...	...	...
7·2	7·9	8·6	9·3	9·7	10·3	10·8	11·2	...	...	...
5·8	6·6	7·1	7·6	8·2	8·7	9·3	9·9	...	...	...
9·5	10·2	10·7	11·5	12·3	13·3	14·0	14·7	...	...	...
12·3	13·1	13·6	14·3	15·0	15·7	16·6	17·4	26·8	27·1	...
7·9	8·6	9·2	9·8	10·5	11·1	11·7	12·6	...	...	...
6·9	7·4	7·9	8·4	8·8	9·5	10·0	10·6	...	...	...
8·8	9·4	10·0	10·4	11·1	11·4	11·8	Bark ·4	...	...	...
12·2	13·7	14·5	Bark ·5	...	...	...	...	...	...	...
7·2	7·7	8·2	8·6	9·0	9·3	9·6	9·9	...	...	...
8·5	9·3	9·9	10·6	11·3	11·7	12·3	13·0	...	...	...
9·6	10·6	11·5	12·4	13 1	13·9	14·7	15·3	...	...	...
9·1	10·0	11·1	11·6	12·5	12·9	13·6	14·5	...	...	...
9·8	11·2	11·5	12·3	12·8	Bark ·7	...	...	...	..	
12·4	Bark ·4	...	...	...	...	...	...	...	...	...
12·0	12·6	Bark ·4	...	...	...	...	...	...	...	...
10·3	10·8	11·5	12·2	12·8	13·1	13·3	13·5	...	...	...
7·8	8·4	9·5	10·1	10·8	11 5	12·1	12 5	...	...	...
6·3	7·1	7·8	8·2	8·6	9·4	9·9	10·2	...	...	...
9·5	9·9	10·6	11·4	11 9	12·4	13·0	Bark ·4	...	...	...
11·5	12·7	13·0	13·8	Bark ·6	..	...	...	...	...	...
9·5	10·5	11·5	12·5	13·3	14·1	14·8	15·7	...	...	...
12·4	13·2	14·2	15·1	15·6	16·4	17·2	17·8	...	...	...
10·8	11·9	12·8	13·0	13·6	14·4	15·2	15·7	·2	24·6	Bark ·5
9·1	9·6	10·4	11·0	11·5	11·9	12·4	12·8	·1	22·9	23·3
9·1	9·6	10·0	10·7	11·1	11·6	12·3	12·9	..	...	...
13·5	14·6	15·5	16·5	17·7	19·0	19·8	21·0	·0	31·4	31·8
8·4	9·3	10·1	11·0	11·8	12·5	13·3	14·2	·2	22·9	23·5
7·6	8·5	9·5	10·2	10·7	11·1	11·7	12·2	·3	22·8	23·3
7·8	8·4	9·0	9·9	10·9	11·8	12·6	13·2	·1	23·7	24·2
12·2	13·0	13·6	14·3	15·0	15·6	16·2	16·7	..	...	...
8·5	9 1	9·7	10·0	10·7	11·2	11·7	12·4	..	...	...
8·4	9·4	10·1	10·9	11·4	12·4	13·0	13·7	·8	24·2	24·6
12·2	13·1	13·9	14·9	15·5	16·1	16·4	16·8	..	...	...
10·6	11·2	11·7	12·3	12·9	13·8	14·7	15·6	·3	24·6	25·1
8·8	9 3	10·0	10·9	11·4	11·9	12·3	12·8	·2	22·6	23·1
12·2	13·2	13·9	14·6	15·7	16·4	17·2	18·3	·4	28·7	28·9
8·8	9·6	10·0	10·4	11·1	11·9	12·9	13·7	·4	Bark ·8	...
11·3	12·1	12·8	13·6	14·5	15·3	16·0	16·7	·9	28·4	28·7
13·8	15·4	17·0	17·9	18·6	19·2	19·8	20·2	·2	33·7	34·2
459·4	485·5	505·7	504·7	486·1	486·6	510·5	508·6	·2	384·1	365·7
9·77	10·55	11·23	11·73	12·15	12·80	13·43	14·13	·90	25·60	26·12

20 years. 26 years.

APPENDIX

Increment of Test Trees

BLOCKS

Compartment No.	Age in	95	100	105	110	115	120	125	130
	Diameter								
	MA								
30		16·7	17·1	17·5	18·0	18·5	19·1	19·7	20·5
29		13·1	13·6	14·3	15·2	15·9	18·5	17·3	18·0
29		11·6	12·2	12·9	13·6	14·4	14·9	15·6	16·1
32		...	...	...	...	...	...	...	...
32		...	...	...	...	...	...	...	...
32		...	...	...	...	...	...	...	...
32		...	...	...	..	...	...	...	...
32		...	...	...	...	...	...	...	...
32		...	...	...	...	...	...	...	...
34		11·5	11·6	12·0	12·6	13·2	13·7	14·0	14·3
34		11·5	12·2	12·8	13·1	13·6	13·9	14·4	15·0
34		10·1	11·1	11·8	12·6	13·1	13·5	13·9	14·4
34		15·4	16·1	16·7	17·3	17·9	18·6	19·0	19·6
34		18·1	18·6	19·4	20·1	20·7	21·3	21·8	22·4
34		13·1	14·0	14·6	15·1	15·6	15·9	16·2	Bark ·6
10		11·1	Bark ·4	...	...	...	...	...	...
10		...	...	...	...	...	...	...	...
10		...	...	...	...	...	...	...	...
10		...	...	...	...	...	...	...	...
10		10·2	10·5	11·0	11·4	Bark ·5	...	...	...
10		13·5	14·1	14·7	15·3	Bark ·5	...	...	...
26		16·1	16·6	17·2	17·9	18·7	19·5	20·3	21·2
9		15·6	15·9	17·1	17·9	18·6	19·4	19·9	20·2
22		...	...	...	...	...	...	...	...
22		...	...	...	...	...	...	...	..
23		...	...	...	...	..	...	...	...
21		13·9	...	...	...	...	...	...	...
22		Bark ·6	...	...	...	...	...	...	...
22		10·7	11·1	11·6	12·0	12·3	12·8	13·3	13·8
21		...	...	...	...	...	...	...	...
21		...	...	...	...	...	...	...	...
8		16·6	17·6	18·5	19·5	20·3	20·9	Bark ·8	...
8		18·3	18·9	19·5	20·1	20·6	Bark ·4	...	...
41		16·3	16·9	17·5	17·9	18·4	18·9	19·4	19·6
41		13·4	14·1	14·8	15·3	15·6	15·8	16·4	16·9
41		13·6	14·1	14·9	15·6	16·4	17·1	17·6	18·5
41		21·6	22·0	22·7	23·4	24·0	24·7	25·3	26·1
41		14·9	15·6	16·2	16·6	17·1	17·2	17·4	17·7
41		12·8	13·5	14·1	14·6	15·3	16·2	17·1	17·7
41		13·8	14·5	14·9	15·6	15·3	16·8	17·4	17·9
41		17·4	17·9	18·4	18·9	19·4	19·8	20·0	20·5
41		13·1	13·4	15·0	16·2	17·2	17·9	18·6	19·5
41		14·5	15·1	15·6	16·4	16·9	17·4	18·1	18·9
41		17·3	18·0	18·4	18·9	19·3	20·1	20·5	21·1
41		16·4	17·1	17·5	17·9	18·3	18·7	19·0	19·7
41		13·3	13·7	14·2	14·6	15·2	15·9	16·3	16·9
41		19·1	20·5	21·1	21·6	21·9	22·3	22·7	23·4
41		14·6	14·8	15·3	15·9	16·8	17·4	17·8	18·3
66		17·5	18·3	18·9	19·9	20·6	21·1	21·8	22·4
57		21·7	22·1	23·1	24·2	24·9	25·7	26·6	27·4
Total ...		518·4	512·8	534·2	555·2	547·0	543·0	537·4	538·0
Averages		14·81	15·51	16·19	16·82	17·64	18·10	18·53	19·21
Period taken to pass from one 3" class to the next..			22 years.				24 years.		

V.

for periods of 5 years.

XXIV & XXV.

year.

135	140	145	150	155	160	165	170	175	180	185	190	195	200
in inches.													
TTI.													
21·1	21·7	22·4	23·1	23·5	...	...	...	...	...	..	...	...	...
18·8	19 2	19·6	20·2	21·0	21·6	22·1	22·7	23·3	23·9	24·4	25·1	26·0	27·1
16·8	17·0	17·8	18·1	18 6	18·9	19·4	19·9	20·5	21·0	21·2	21·7	21·9	22·3
..	...	...	...	..	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	..	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	..	...	...
14·8	...	...	...	...	...	...	...	...	...	...	...	...	...
15·4	15·9		...	...	...	...	...	...	...	...	...	...	...
14·9	15·2	15·6	16·2	16·8	...	...	...	...	...	..	...	...	...
20·1	20·3	21·2	21·9	22·5	23·0	23·3	23·8	24·1	24·6	24·9	...	...	...
22·9	23·4	23·6	24·1	24·6	24 9	25·2	25·6	25·9	23·3	26·6	26·8	27·1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	..	...	...	...	...	..	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
22·4	24·0	24·5	...	...	...	...	...	...	...	...	...	...	...
20·6	20·9	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	..
...	...	...	...	...	...	..	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	..	...	..	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bark ·6	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	..	...	...	...	...	...	...	...	...	...	...	...	...
20·2	20·9	21·2	21·8	22·0	22·4	23·1	23·6	23·8	24·1	24·2	24·6	Bark ·5	...
17·4	17·8	18·4	18·9	19·5	19·9	2 r·5	21·0	21·4	21·8	22·1	22·9	23·3	...
19·6	20·3	21·0	22·4	23·1	23·8	24·8	25·4	26·1	..	...	...	...	...
26·8	27·1	27·8	27·9	28·6	29·1	29·6	30·0	30·4	30·7	31·0	31·4	31·8	32·4
18·2	18·8	19·1	19·4	19·8	20·4	20·7	20·9	21·3	21·8	22·2	22·9	23·5	23·8
18·2	18·6	18·8	19·6	20·2	20·6	20·9	21·2	21·6	22·0	22·3	22·8	23·3	23·5
18·5	19·0	19·5	20·0	20·6	21·1	21·3	21·8	22·2	22·7	23·1	23·7	24·2	25·0
20·9	21·4	22·1	22·4	22·7	23·2	Bark ·6	...	...	...	...	...	...	...
19·9	20·2	23·0	23·7	24·3	24·7	25·3	25·9	26·3	26·8	...	...	...	...
19·7	20·0	20·4	20·9	21 4	21·9	22 3	22 8	23·2	23·6	23·8	24·2	24·6	Bark ·7
21·3	21·6	21·9	22·2	22·4	22·6	22·9	Bark ·6	...	...	...	...	...	...
20·3	20·7	21·1	21·6	22·0	22·3	22·6	23·0	23·4	23·9	24·3	24·6	25·1	Bark ·5
17·7	18·6	19·0	19 4	19 8	20·3	2 r·8	21·3	21·7	21 9	22·2	22·6	23·1	23 4
24·2	24·9	25·4	25·9	26·5	26·9	27·3	27·4	27·8	28·1	28·4	28·7	28·9	29·0
18·7	19·2	19·6	20·0	20·5	20·9	21·2	21·6	22·0	22·1	22·4	Bark ·8	...	...
22·8	23·4	23·8	24·3	24·6	25·1	25·7	26·4	27·0	27·5	27·9	28·4	28·7	28·9
28·4	29·0	29·6	30·2	30·7	31·4	31·9	32·2	32·6	32·9	33·2	33·7	34·2	Bark ·8
540·6	539·6	516·4	504·2	515·7	485·0	470·9	456·5	461·6	445·7	424·2	384·1	365·7	235·4
20·02	20·75	21·51	21·96	22·42	23·10	23·54	24·02	24·45	24·76	24·90	25·60	26·12	...
		25 years.					35 years.						

APPENDIX

Increment of Test Trees

BLOCKS

Compartment No.	Age in 5	10	15	20	25	30	35	40	45	50
	Diameter in									NA
31	1·0	1·9	2·7	3·6	4·4	5·0	5·4	5·7	6·5	7·4
31	2·2	6·9	8·5	10·0	11·4	12 3	12·7	14·0	14·9	15·6
30	1·0	1·9	2·7	3·6	4·4	5·4	6·4	7·2	8·2	9·1
30	1·0	2·0	3·1	4·2	5·4	6·8	7·8	8·4	9·1	9·6
29	1·1	1·7	2·5	3·0	3·5	4·1	4·5	5·0	5·5	5·9
39	1 2	2·5	3·1	3·8	4·4	4·8	5·3	5·9	6·7	7·3
39	1·2	1·9	2·7	3·6	4·9	5·9	6·8	8·0	9·2	10·5
6	·9	2·4	3·4	4·5	5·6	6·4	7·2	7·9	8·7	9·7
6	1·6	3·6	4.7	5·7	8·1	10·1	11·7	13·1	14·1	14·9
6	·8	1·6	2·6	3·7	4·6	5·6	6·6	7·3	8·2	9·2
6	1·0	2·0	2·9	3·6	4·1	5·2	6·2	7·0	7·5	8·1
22	·5	1·1	2·2	3·3	4·1	5·6	6·6	7·3	8·2	9 0
6	2·0	3·0	3·8	4·8	6·1	7·1	7·9	8·6	9·0	9·4
9	·7	1·6	2·3	3·9	3·6	4 4	5·5	6·6	7·5	8·0
6	1·3	2·2	3·5	4·6	5·6	6·8	7·8	8·3	9·5	10·9
6	·5	1·1	1·8	2·4	2·9	3·3	4·1	4·7	5 5	6·7
6	·6	1·1	1·8	2·3	2·8	3·5	4·2	5·1	5·6	6·2
48	1·1	2·0	4·7	6·8	8·6	9·7	10·5	11·3	12·0	12·6
.....	1·9	4·2	6·0	6·8	7·5	8·3	9·2	10·0	10·9	11·6
48	4·8	7·3	9·1	10·5	11·9	12·6	13·3	14·0	14·6	15·3
54	1·0	2 7	3·5	4·3	4·9	5·8	6·7	7·2	7·9	8·8
.....	·9	2	2·8	3·5	4·2	5·2	6·1	6·9	7·6	8·3
66	1·2	2·4	3·3	4·9	6·2	7·1	8·1	9·1	10·1	11·1
48	1·4	3·4	4 4	5·3	6·2	7·4	8·0	9·1	10·2	11·4
48	2·0	3·4	4·5	5·6	6·4	7·2	8·0	8·9	9·9	11·1
58	1·8	3·5	4 6	5·6	6·5	7·4	9·0	10 3	10·9	11·5
48	1·9	5·2	7·1	7·7	8·3	9·1	10·1	11·4	12·0	13·5
48	1·4	3·6	4·8	5·8	6·6	7·3	8·0	8·8	9·6	10·1
66	·5	1·3	2·7	4·3	5·3	6·5	7·6	9·2	10·1	10·6
58	·9	2·0	2·7	3·4	3·9	4·6	5·4	6·9	7·8	8·5
58	·9	1·9	2·4	3 3	4·0	4·6	5 3	6·2	7·8	9·0
66	·6	1·6	2·5	4·4	5·2	7·0	8·5	9·7	11·7	13·4
57	1·9	4·9	7·3	8·3	9·1	10·0	11·2	12·4	13·5	15·1
Total ...	42·8	90·1	126·7	161·1	190·7	222·1	251·7	281·5	310·5	339·4
Average ...	1·30	2·70	3·80	4·90	5·78	6·73	7·62	8·53	9·41	10·28
Period taken to pass from one 3" class to the next.	7 years.		14 years.			16 years.			18 years.	

V.

for periods of 5 years.

year.

55	60	65	70	75	80	85	90	95	205	200	205	210
inches.												
NA.												
7·8	8·2	8·4	8·6	9·1	9·4	10·0	10·6	11·5	2·3	22·6	23·3	23·5
16·3	16·9	17·4	18·0	19·0	19·7	20·3	20·6	21·3	..	...	...	...
10·0	10·7	11·5	12·6	13·5	14.6	15·2	16·1	17·0	..	...	...	...
10·1	10·7	11·3	11·9	12·5	12·9	13·2	13·6	14·1	..	...	...	...
6·4	6·8	7·4	8·1	8·8	9·2	9·7	10·2	10·8	4·1	24·6	...	...
7·9	8·4	9·0	9·6	10·3	11·1	11·6	12·2	12·8	..	...	...	...
11·6	12·9	14·0	14·9	15·7	16·6	17·4	18·5	19·8	...	...	...	...
10·4	10·9	11·5	12·2	12·8	13·2	13·9	14·4	14·9	...	...	...	...
15·8	16·5	17·2	17·8	18·6	19·4	20·3	21·2	21·8	9·3	29·8	Bark ·3	...
9·9	10·6	11·4	11·8	12·8	13·0	13·5	14·0	14·5	3·3	23·6	24·0	24·3
8·6	9·1	9·5	9·9	10·1	10·6	10·9	11·3	11·9	...	...	...	...
9·6	10·9	11·5	12·1	12·5	13·8	13·9	14·4	14·8	...	...	...	...
9·7	10·1	10·6	11·1	11·8	12·4	13·1	13·7	14·1	...	...	...	...
8 8	9·6	10·4	11·1	11·9	12·6	13·5	Bark ·2	...	...	...	...	...
11·9	12·7	13·2	13·9	14·7	15·5	16·0	16·4	16·8	24·6	25·1	25·7	25·9
7·0	7·5	8·2	9·0	9·6	10·5	11·2	11·9	12·5	24·7	25·0	25·5	Bark ·3
6·9	7·7	8·3	9·1	9·7	10·4	11·2	12·1	13·0	...	...	...	...
13·0	13·4	13·9	14·4	14·8	15·2	15·6	16·1	16·6	ark ·4	...	...	...
12·3	13·0	13·7	14·4	14·9	15·4	16·0	16·5	17·0	...	...	...	...
16·0	16·5	16·9	17·3	17·9	18·4	18·9	19·4	19·9	...	...	...	...
9·5	10·4	11·3	12·3	13·4	14·2	15·1	15·8	16·5	29·1	29·7	30·1	31·6
9·0	9·6	10·2	10·8	11·4	12·1	12·7	13·3	13·8	24·9	25·4	25·8	Bark ·4
11·8	12·0	13·8	14·6	15·5	16·5	17·6	18·3	18·9	ark ·3	...	...	...
12·6	14·0	15·1	15·9	16·6	17·6	18·3	19·2	19·9	...	...	...	...
12·5	13·5	14·3	15·3	16·3	16·9	17·7	18·3	19·0	...	...	...	...
12·2	12·9	13·6	14·6	15·6	16·6	17·9	19·0	19·9	...	...	...	...
15·6	16·8	17·9	18·6	19·4	19·8	20·3	21·1	21·9	...	...	...	...
10·9	11·6	12·3	12·9	13·5	13·9	14·5	14·9	16 1	26·4	26·9	27·1	Bark. 4
11·4	12·1	13·0	13·5	14·4	15·1	15·6	16·1	16·7	...	...	...	...
9·4	10·3	11·0	12·0	12·9	13·8	14·8	16·0	17·1	...	...	...	..
10·3	11·3	12·2	12·8	13·6	14·1	14·6	15·1	15·6	25·9	26·2	26·5	26·8
14·4	15·5	16·9	18·1	19·5	20·8	22·2	23·4	24·5	...	...	...	...
16·4	17·8	18·9	20·0	20·3	22·2	22·9	23·6	24·	...	...	...	...
365·0	390·9	415·8	439·2	463·4	487·5	509·6	517·3	539·4	254·6	258·9	208·0	132·1
11·06	11·84	12·63	13·31	14·04	14·77	15·44	16·16	16·85	25·4	25·9	26·0	26·4
20 years.						21 years.						

APPENDIX

Increment of Test Trees

BLOCKS

Compartment No.				Age in								
				100	105	110	115	120	125	130	135	140
				Diameter in								
												NA
31	...	...		12·4	13·3	13·5	14·1	14·9	15·5	16·1	16·5	17·0
31	...	...		22·1	22·6	22·9	23·5	24·3	24·8	26 5	...	...
30	...	...		17·8	18·5	19·1	19·9	20·3	20·8	21·2	21·8	22·2
30	...	...		14·6	15·2	16·0	16·4	16·9	17·6	18·4	19·0	19·6
29	...	...		11·3	11·8	12·2	12·9	13·6	14·2	14·8	15·8	16·8
39	...	...		13·5	14·2	15·0	15·6	16·4	17·1	17·9	18·3	18·6
39	...	...		20·5	21·1	21·7	23·0	23·6	24·2	24·9	25·6	26·1
6	...	...		15·2	15·5	16·0	16·8	17·5	18·3	19·1	19·9	20·6
6	...	...		22·6	22·9	23·2	23·5	23·9	24·2	24·6	25·0	25·4
6	...	..		14·7	15·2	15·5	16·1	16·8	17·4	18·0	18·6	19·0
6	...	...		12·1	12·5	12·7	13·1	13·4	13·7	14·0	14·2	14·6
22	...	...		15·2	15·7	16·2	16·8	17·3	18·0	18·5	19 0	19 5
6	...	...		14·6	15·0	15·3	15·6	16·1	16·5	16·9	17·7	1 8·2
9	...	..		...	...	...	...	...	...	...	...	...
6	...	...		17·5	17·9	18·3	18·7	19·1	19·4	19·7	20·1	20·4
6	...	...		13·1	14·1	15·0	15·7	16·5	16 8	17·4	18·0	18 7
6	...	...		14·0	15·1	15·8	16·8	17·8	18·4	19·0	19·6	20·2
48	...	.		17·2	17·8	18·3	18·8	19·2	19·7	20·0	20·5	20·8
	.....			17·6	18·1	18·7	19·4	20·0	20·8	21·7	22·6	23·4
48	...	...		20·3	20·8	21·4	21·8	22·2	22·7	23·1	23·6	24 1
54	...	...		17·4	18 1	18·6	19·1	19·7	20·6	21·3	22·0	22·6
	.....			14·2	14·7	15 2	15·9	16·5	17·1	17·5	18·0	18·5
66	...	...		19·6	20·3	21·3	21·9	22·5	23·0	23·6	24·2	25·0
48	...	...		20·9	21·8	22·9	23·9	Bark ·3	...	...	...	...
48	...	...		19·7	20·4	20·9	21·7	22·2	22·9	23·6	24·1	Bark ·2
58	...	...		20·1	21·9	22·7	23 3	23·9	24·4	24 9	25·5	26·1
48	...	...		22·7	23·6	24 2	24·7	25·5	26·1	26·8	27·4	27·8
48	...	...		17·1	17·7	18·3	19·1	19·5	20·0	20·6	21·1	21·7
66	...	...		17·3	17·8	18·5	19·1	19·7	20·2	21·1	21·8	22·2
58	...	...		17·9	18·9	19·6	20·7	21·6	22·6	23·5	24·4	25·1
58	...	...		16·2	16·7	17·3	17·8	18·4	18·9	19·3	20·1	20·8
66	...	...		25·6	26·7	28·0	28·9	Bark ·4	...	...	...	...
57	...	..	1	25·0	25·6	26·0	26·4	27·0	27·6	28·1	28·9	29·5
Total	...		42	560·0	581·5	600·3	621·0	586·3	603·5	622·1	613·3	604·5
Average	...		1·	17·50	18·17	18·76	19·09	18 32	20·10	20·60	21·1	21·5
Period taken to pass from one 3" class to the next.			7			29 years.						35 years.

V.

for periods of 5 years.

XXIV & XXV.

years.

145	150	155	160	165	170	175	180	185	190	195	200	205	210
inches.													
NA.													
17·6	18·3	18 7	19·0	19·6	20·0	20·5	21·0	21·4	21·8	22·3	22·6	23·3	23·5
...	...	...	...	...	...	...	..	...	...	...	...	...	...
22 9	23·4	24·0	24·5	24·7	...	...	...	...	...	...	...	...	...
20·2	20·8	21·5	22·1	22·9	24·0	..	...	...	...	...	...	...	...
17·8	18·9	19·5	20·3	20·8	21·6	22·1	22·6	23·2	23·7	24·1	24·6	...	...
19·2	...	...	...	...	...	...	...	...	...	...	...	...	...
26·6	27·2	...	...	...	...	...	...	...	...	...	...	...	...
21·4	21·9	22·3	22·9	23·4	23·8	24·2	24·9	25·1	Bark ·5	...	...	...	...
25·7	26 0	26·3	26·8	27·2	27·7	28·0	28·4	28·8	29·1	29·3	29·8	Bark ·3	...
19·5	19·9	20·4	20·8	21·2	21·5	21·9	22·2	22·6	22·9	23·3	23·6	24·0	24·3
14·8	15·1	15·4	15·7	...	...	...	...	...	...	...	...	...	...
19·9	20·4	20·7	21·1	21·3	21·5	21·9	22 2	Bark ·2	...	...	...	...	...
18·7	19·0	19·3	20·0	20·4	20·8	21·2	21·4	21·6	Bark ·2	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
20·9	21·2	21·6	21·9	22·2	22·5	23·0	23·5	23·8	24·2	24·6	25·1	25·7	25·9
19·3	20·1	20·7	21·4	21·9	22 3	22·8	23·3	23·7	24·2	24·7	25·0	25·5	Bark ·3
20·8	21·3	21·7	...	...	...	...	...	...	...	...	...	...	...
21·4	22·6	23·0	23·2	23·6	24·0	24·3	24·6	24·9	25·4	Bark ·4	...	...	...
Bark ·4	...	...	...	...	...	...	...	...	...	...	...	...	...
Bark ·3	...	...	...	...	...	...	...	...	...	...	...	...	...
23·4	24·1	24·7	25·3	25·8	26 3	26·9	27·4	27·9	28·4	29·1	29·7	30·1	31·6
19·1	19·8	20·3	20·8	21·2	21·7	22·2	22·7	23·3	24·1	24·9	25·4	25·8	Bark ·4
25·7	26·5	27·3	27·9	28·6	29·4	30·3	30·9	31·6	32·4	Bark ·3	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
26·6	27·2	27·5	28·1	28·7	29·2	29·7	30·2	Bark ·4	...	...	...	...	...
28·3	23·5	28·8	Bark ·2	...	...	...	...	...	...	...	...	...	...
22·1	22·5	22·9	23·3	23·7	24·2	24·7	25·1	25·6	26·0	26·4	26·9	27·1	Bark. 4
22·7	Bark ·3	...	...	...	...	...	...	...	...	...	...	...	...
25·8	26·3	26·7	Bark ·4	...	...	...	...	...	...	...	...	...	..
21·4	22·0	22·8	23·3	23·8	24·2	24·7	24·9	25·2	25·5	25·9	26·2	26·5	26·8
...	...	...	...	...	...	...	...	...	...	...	...	...	...
30·1	30 6	30·8	31·2	31·5	31·8	Bark ·4	...	...	...	...	...	...	...
572·1	543·6	526·9	459·8	482·5	436·5	388·4	395·3	348·7	307·7	254·6	258·9	208·0	132·1
22·0	22·6	22·9	22·98	24·1	24·2	24·3	24·7	24·9	25·6	25·4	25·9	26·0	26·4

45 years.

APPENDIX

Increment of Test trees

BLOCKS

Compartment No.	Age in 5	10	15	20	25	30	35	40	45	50
	Diameter in									
KIN										
30	·7	1·7	2·2	3·0	4 0	5·0	6·1	7·2	8·1	9·6
31	1·0	1·6	3·0	4·0	5·0	5·6	6·8	7·2	8·1	9·2
30	1·2	2 4	3·3	4·5	5·9	6·0	8·2	9·4	10 6	11·9
29	1·8	3·1	4·6	6·0	7·0	7·9	9·5	10·3	11·4	12·1
29	·8	1·6	2·4	3·2	4·2	5·2	6·2	6·9	7·7	8 5
29	·8	1·5	2·5	3·8	4·9	6·3	7·6	9·3	10·8	11·8
32	1·1	2·0	2·9	3·8	4·9	5·9	7·2	8·6	9·6	10·7
31	1·1	2·0	3·0	3·9	4·8	5·4	5·9	6·8	7·4	8·4
31	1·4	2·5	3·4	4·2	4·9	5·6	6·4	6·9	7·8	8·3
31	...	...	...	...	...	5·5	8·6	9·4	10·5	11·6
31	...	...	...	...	...	...	...	5·4	5·9	6·8
34	·6	1·3	1·9	2·7	3·6	5·1	6·0	6·8	7·6	8·4
34	·6	1·2	2·0	2·9	4·0	4·9	6·0	6·8	7·9	8·8
34	1·5	2·7	4·0	5·1	6·0	6·7	7·5	8·4	9·0	10·0
34	1·4	2·5	3·8	4·8	6·1	7·4	8·5	9·7	11·1	12·0
34	1·1	2·2	3·6	4·7	5·6	6·6	7·3	8·3	9·4	11·0
10	·9	1·9	2·5	3·2	3·9	4·7	5·6	6·6	7·6	8·7
10	·9	1·5	2·6	3·8	4·4	5·1	5·7	6·2	6·6	7·2
23	·9	1·6	2·6	3·5	4·6	5·4	5·9	6·4	7·2	7·9
23	1·0	2·3	3·4	4·1	5·9	6·3	7·2	7·9	8·7	9·1
21	1·1	2·1	2·9	3·7	4·4	5·3	6·1	6·9	7·6	8·9
7	1·1	1·6	2·1	2·7	3·4	4·1	4·6	5·2	5·8	6·2
21	2·2	3·5	5·3	6·1	7·1	7·8	8·4	9·8	10·7	11·3
21	1·3	3·4	4·7	5 8	6·3	7·0	7·7	8·7	9·5	10·3
48	1·5	2·8	4·4	5·4	6·5	7·6	8·2	9·0	10·0	10·8
66	1·2	2·8	3·6	4·3	4·6	5 3	6·4	7·3	8·2	9·0
66	1·1	2·2	3·0	3·9	4·9	5·9	6·8	8·0	9·6	11·0
58	·8	1·4	2·1	2·8	3·3	4·0	4·9	5·3	6·0	6·7
58	1·1	2·2	3·1	3·9	4·9	5·8	6·6	7·5	8·3	9·1
Total ...	30·2	57·6	84·9	109·8	135·1	163·4	191·9	222·2	248·7	275·3
Average ...	1·1	2·1	3·1	4·1	5·0	5·8	6·8	7·6	8·6	9·5
Period taken to pass from one 3″ class to the next...	9 years.		16 years.		17 years.					
JAM										
39	·8	1·6	2·4	2·9	3·5	4·5	5·2	6·1	6·6	7·5
39	·7	1·5	2·4	3·2	3·9	4·5	5·3	6·0	6·6	7·3
34	·7	1·5	2·2	2·9	3·8	4·5	5·2	6·3	7·3	8·1
39	·6	1·6	2·3	3·1	3·7	4·4	5·0	5·5	6·2	7·3
10	1·3	2·9	4·0	4·9	5·8	6·8	7·9	9·6	10·0	10·9
10	1·0	1·9	3·0	4·1	5·1	5·8	6·8	7·8	8·6	9·5
9	·4	1·3	2·0	2·8	3·7	4·6	5·2	6·1	6·9	7·5
10	1·2	2·4	3·2	4·4	5·6	6·9	7·6	8·4	9·5	10·4
10	1·1	2·5	3·3	4·3	4·9	5·6	6·2	6·8	7·7	8·4
9	·8	1·6	2·6	3·6	4·5	5.2	6·0	6·8	7·4	8·1
23	1·7	1·8	2·5	3·3	4·1	4·9	5·8	6·8	7·4	8·0
9	1·1	2·2	3·1	4·0	4·7	5·4	6·1	7·0	8·1	8·9
9	1·1	2·4	3·4	4·4	5·4	6·3	7·1	8·3	9·7	10·9
21	1·4	2·4	3·3	4·1	5·1	5·8	6·5	7·0	7·8	8·5
21	·6	1·3	1·8	2·6	3·2	4·1	4·8	5·6	6·3	7·3
9	·6	1·7	2·3	3·1	3·8	4·1	5·1	5·8	6·6	7·4
.....	1·2	2·4	3·5	4·5	5·2	6·2	7·3	8·6	9·6	10·7
.....	1 1	1·7	2·3	2·9	3·4	3·8	4·4	5·0	5·8	6·6
48	1·6	2·5	3·3	4·2	5·2	6·1	7·1	8·2	9·3	10·4
57	1·1	1·7	2·3	2·7	3·2	3·6	4·1	4·7	5·3	6·0
48	1·0	1·6	3·1	5·0	6·4	6·9	7·9	8·9	9·9	11·1
43	1·4	2·6	3·8	4·9	5·6	6·5	7·3	8·0	9 0	9·7
48	·8	1·8	2·6	3·6	4·1	4·8	5·5	6·4	7·0	7·8
58	·7	1·3	2·1	3·1	3·9	4·3	4·6	5·1	5·4	5·9
58	·7	1·1	1·7	2·3	3·2	4·0	4·7	5·2	5 6	5·9
58	1·0	2·0	2·5	2·9	3·7	4·5	5·2	6·6	7·3	8·0
Total ...	25·7	49·3	71·0	93·8	114·7	134·0	153·9	176·6	196·9	218·1
Average ...	·99	1·90	2·73	3·60	4·41	5·15	5·92	6·79	7·57	8·39
Period taken to pass from one 3″ class to the next ..	11 years.		18 years.		19 years.					

V.

for period of 5 years.

XXIV AND XXV.

year.

55	60	65	70	75	80	85	170	175	180
inches.									
DAL.									
11·2	11·6	12·6	13·4	14·4	14·8	15·9	...	...	.....
10·0	10·8	11·1	11·8	12·0	12·8	13·5	26 8	27·0	27·8
12·9	14·2	15·7	16·5	17·3	18·5	19 5	...	...	.....
13·1	14·0	15·0	16·1	17·2	18·0	18·8	...	...	.....
9·1	9·7	10·2	10·7	11·4	12·4	13·2	...	...	.....
12·5	13·5	15·1	16·3	17·6	18·3	19·1	...	...	.....
11·9	12·8	13·8	14·9	15·5	...	...	...	...	.....
9·4	10·2	10·8	11·4	12·3	13·4	14·1	...	...	.....
8·7	9·3	10·1	10·6	11·3	12·3	13·2	25·1	...	.....
12·4	13·2	13·8	14·5	15·1	15·6	16·4	...	...	.....
7·8	8·4	9·3	10·2	10·8	11·5	12·1	...	...	.....
9·1	9·9	10·8	11·4	12·3	13·1	13·8	...	...	.....
9·9	11·0	11·9	12·7	13·6	14 5	15·7	...	...	.....
10·8	11·5	12·1	12·9	13·6	14·8	15·5	...	...	.....
12·8	13·9	14·7	15·5	17·0	17·8	18·6	...	...	.....
12·7	14·1	15·5	15·6	17·8	18·4	19·4	...	...	.....
9·5	10·3	10 9	11·5	12·2	13·0	13·6	...	...	.....
7·9	8·4	9·0	9·6	10·1	10·7	13·1	...	...	.....
8·4	9·0	9·7	10·5	11·4	12·3	13·9	...	...	.....
10·0	10·7	11·3	12·2	13·2	14·2	15·1	...	...	.....
9·7	10·8	11·6	12·7	13·6	14·8	15·3	26·6	Bark ·8	.....
6·6	7·1	7·6	8·1	8·5	9·0	9·6	...	...	.....
12·2	13·2	13·9	14·6	15·6	16·6	17·6	28·7	28 9	29·4
10·9	11·5	12·1	12·8	13·5	14·9	15·1	...	...	.....
11·6	12·6	13·4	14·3	15·4	16·7	17·7	...	...	.....
9·8	10·6	11·4	12·1	12·9	13·7	14·5	...	...	.....
12·1	13·5	14·6	15·8	17·4	18·8	20·0	...	...	.....
7·4	8·1	8·7	9·3	10·1	11·0	11·7	21·9	22·4	22·9
9·8	10·8	11·5	12·1	13·0	13·8	14·5	25·2	Bark ·3	.....
300·2	324·7	348·2	370·1	396·3	405·7	430·5	154·3	78·3	80·1
10·3	11·2	12·0	12·7	13·6	14·5	15·4	25·7	26·1	26·7
17 years.			18 years.		18 years.				
BA.									
8·3	8·9	10·0	10·6	11·4	12·0	12·6	22·2	22·4	22·8
7·9	8·6	9·4	10·1	10·7	11·4	12·0	25·1	26·1	26·9
8·9	9·4	9·9	10·5	11·3	11·8	12·4	...	...	.....
7·9	8·6	9·0	9·7	10·5	11·0	11·7	...	...	.....
12·1	13·8	14·7	15·6	16·3	17·0	17·8	...	...	.....
10·4	11·3	12·2	13·0	14·0	14·8	15·3	...	...	.....
8·4	9·3	9·6	10·3	11·2	11·9	12·8	...	...	.....
11·3	12·3	13·1	14·3	15·2	15·9	16·4	...	...	.....
9·6	10·7	12·8	14·2	15·5	16·9	18·2	...	...	.....
8·8	9·3	9·8	10·7	11·6	12·4	13·2	...	...	.....
8·6	9·5	10·2	11·0	11·8	12·7	13·2	...	...	.....
9·9	10·9	11·6	12·2	12·9	13·3	13·8	...	...	.....
12·2	13·2	14·2	15·2	16·2	17·2	18·4	...	...	.....
9·3	10·1	11·0	11·9	12·8	13·8	15·0	...	...	.....
8·4	9·3	10·2	10·8	11·3	12·0	12·6	..	...	.....
8·0	9·2	9·7	10·7	11·6	12·1	12·7	21·8	22·6	23·3
11·4	12·3	13·1	14·0	14·8	15·7	16·8	...	.	.....
7·7	8·5	9·8	10·3	10·8	11·3	11·9	22·0	22·3	23·0
11·4	12·3	13 1	13·9	14·7	15·5	16·1	...	...	.....
6·8	7·4	8·2	9·1	9·9	10·7	11·3	22·4	22·9	23·4
12·0	12·8	13·8	14·7	15·9	17·0	17·8	...	...	.....
10·4	11·2	12·0	12·8	13·5	14·1	15·0	26·8	27·3	27·8
8·4	9·2	10·2	11·1	11·7	12·3	13·0	24·2	24·9	25·4
6·3	6·8	7·3	8·1	8·6	9·1	9·6	20·1	20·5	20·8
6·6	7·3	7·7	8·1	8·6	9·0	9·3	19·1	19·5	19·9
9·2	10·2	11·4	12·4	13·1	13·9	14·5	...	...	.....
240·2	262·4	284·0	305·3	325·9	344·8	363·4	203·7	208·5	213·3
9·23	10·09	10·92	11·74	12·53	13·26	13·98	22·63	23·16	23·7
18 years.			19 years.						

B 990—27

Compartment No.			5	
30	...	...	·7	
31	...	...	1·0	
30	...	...	1·2	
29	...	...	1·8	
29	...	...	·8	
29	...	...	·8	
32	...	...	1·1	
31	...	...	1·1	
31	...	...	1·4	
31	...	...	...	
31	...	...	...	
34	...	...	·6	
34	...	...	·6	
34	...	...	1·5	
34	...	...	1·4	
34	...	...	1·1	
10	...	...	·9	
10	...	...	·9	
23	...	...	·9	
23	...	...	1·0	
21	...	...	1·1	
7	...	...	1·1	
21	...	...	2·2	
21	...	...	1·2	
48	...	...	1·5	
66	...	...	1·2	
66	...	...	1·1	
58	...	...	·8	
58	...	...	1·1	
		Total ...	30·2	5
		Average ...	1·1	
Period taken to pass from one 3" class to the next...			9 years	

39	...	...	·8	
39	...	...	·7	
34	...	...	·7	
39	...	...	·6	
10	...	...	1·3	
10	...	...	1·0	
9	...	...	·4	
10	...	...	1·2	
10	...	...	1·1	
9	...	...	·8	
23	...	...	1·7	
9	...	...	1·1	
9	...	...	1·1	
21	...	...	1·4	
21	...	...	·6	
9	...	...	·6	
	.....		1·2	
	.....		1 1	
48	...	...	1·6	
57	...	...	1·1	
48	...	...	1·0	
43	...	...	1·4	
48	...	...	·8	
58	...	...	·7	
58	...	..	·7	
58	...	..	1·0	
		Total ...	25·7	4
		Average ...	·99	
Period taken to pass from one 3" class to the next ..			11 yea	

Age in

90	95	100	105	110	115	120	125

Diameter in

KIN

16·6	17·5	18·6	19·4	19·8	20·4	21·4	22·0
14·6	15·2	16·1	17·0	17·8	18·1	19·0	20·0
20·2	21·1	22·0	22·8	23·2	24·7	25·4	26·2
19·6	20·4	21·2	22·1	22·9	23·5	24·2	...
14·0	14·6	15·1	15·9	16·4	17·1	17·8	18·6
20·2	21·2	22·1	22·7	23·6	24·1	...	...
...	...	...	...	...	...	...	...
14·9	15·6	16·5	17·6	18·2	18·9	20·0	20·6
13·9	14·6	15·4	16·1	16·9	17·7	18·2	18·9
17·1	17·7	18·4	19·1	20·0	20·7	21·5	22·3
12·9	13·4	14·0	14·6	15·2	15·8	16·4	16·9
14·6	15·3	16·0	16·6	17·3	18·0	18·9	19·6
16·6	18·0	19·2	20·6	21·8	23·1	24·6	25·2
16·1	16·6	17·1	17·6	18·1	18·5	18·9	19·3
19·7	20·4	21·0	21·5	22·2	23·0	24·1	25·0
20·2	21·3	22·3	23·2	23·9	24·8	25·4	26·1
14·1	14·6	Bark ·4	...	...	...	...	...
14·2	15·1	15·5	15·9	16·4	...	...	...
14·9	15·7	16·3	16·9	Bark ·3	...	...	...
16·2	17·0	18·0	Bark ·4	...	...	...	...
16·3	16·9	17·7	18·1	18·6	19·5	20·2	20·9
10·1	10·5	11·0	11·4	11·9	12·3	12·7	...
18·4	19·2	20·1	20·7	21·5	21·9	22·5	23·2
15·8	16·5	17·2	Bark ·4	...	...	...	...
18·8	19·7	20·6	21·8	23·0	24·2	25·0	26·4
15·3	16·4	17·4	18·1	18·9	19·8	20·6	21·5
21·1	22·1	23·1	23·6	Bark ·5	...	...	...
12·4	13·0	14·0	14·7	15·3	16·1	16·9	17·5
14·8	15·5	16·3	17·0	17·5	18·3	19·0	19·5
453·6	475·1	482·2	465·0	440·4	440·5	432·7	409·7
16·2	17·0	17·8	18·6	19·4	20·0	20·6	21·5

18 years. 20 years. 22 years.

JAM

13·5	14·1	14·5	15·1	15·5	16·1	16·4	16·9
12·4	13·1	13·8	14·6	15·3	16·4	17·0	17·8
12·9	13·6	14·4	15·1	15·8	16·1	16·6	16·9
12·4	13·0	13·8	14·4	15·1	16·0	16·8	17·4
18·5	...	...	...	...	...	...	...
15·8	16·1	Bark ·3	...	...	...	...	...
13·9	14·6	15·6	16·3	16·8	17·4	17·9	18·3
17·2	17·6	18·1	18·5	19·1	19·4	19·7	19·9
19·8	21·2	22·3	23·2	23·9	24·4	25·0	25·5
13·7	Bark ·3	...	...	...	...	...	...
13·9	14·5	Bark ·3	...	...	...	...	...
Bark ·3	...	...	...	...	...	...	...
19·2	20·1	21·2	22·2	23·2	24·1	24·5	Bark ·4
16·0	16·9	17·6	18·7	19·5	20·3	21·2	22·0
12·9	13·4	13·9	14·2	14·7	15·5	16·2	16·9
13·1	13·5	14·1	14·4	14·7	15·3	15·9	...
18·1	19·1	20·2	21·1	22·1	23·3	24·4	25·4
12·9	13·7	14·6	15·3	15·9	16·6	17·2	17·6
16·9	17·5	18·2	18·9	19·5	20·1	20·7	21·2
12·0	12·8	13·6	14·4	15·1	15·8	16·4	17·2
19·0	19·5	20·6	21·6	22·4	23·1	23·8	24·4
15·8	16·3	17·1	17·6	18·3	19·2	19·9	20·7
13·6	14·5	15·2	15·7	16·4	17·1	17·8	18·3
10·2	10·7	11·3	11·7	12·2	12·6	13·3	14·0
9·6	10·1	10·5	11·1	11·6	12·0	12·5	13·1
15·1	15·6	16·4	17·2	17·9	18·6	19·1	19·7
368·4	351·5	337·0	351·3	364·9	379·4	392·3	363·2
14·73	15·28	16·05	16·73	17·38	18·07	18·68	19·12

22 years.

V.

for period of 5 years.

XXIV AND XXV.

year.

130	135	140	145	150	155	160	165	170	175	180
inches.										
DAL.										
22·5	23·0	23·2	23·6	...	...	...	...	...	...	.....
21·0	21·8	22·6	23·8	24·3	25·0	25·7	26·0	26 8	27·0	27·8
26·9	27·8	28·4	29·2	30·4	31·2	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
19·6	20·4	21·1	...	...	...	..	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
19·8	20·6	21·3	22·1	23·1	23·6	24·4	24·6	25·1	...	.....
23·1	24·1	24·9	25·6	...	...	...	...	...	...	.....
17·4	18·1	18·7	19·4	20·0	20·7	21·1	...	...	...	.....
20·2	20·8	21·6	...	...	...	...	...	...	...	.....
26·1	27·1	27·6	28·1	28·5	29·0	29·2	29·6	...	...	.....
19·8	20·2	20·7	21·1	21·5	22·0	22·5	22·7	...	...	.....
25·7	26·4	27·1	27·7	...	...	...	...	...	...	.....
26·8	27·2	27·8	28·2	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
21·8	22·6	23·2	23·7	24·4	25·0	25·5	26·1	26·6	Bark ·3	.....
...	...	...	...	...	...	...	...	...	...	.....
23·8	24·8	24·4	26·2	26·8	27·4	27·9	28·2	28·7	28 9	29·4
...	...	...	...	...	...	...	...	...	...	.....
27·2	Bark ·7	...	...	...	...	...	...	...	...	.....
22·5	23·3	24·1	24·7	Bark ·7	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
18·2	18·8	19·3	19·8	20·3	20·8	21·1	21·4	21·9	22·4	22·9
20·1	20·8	21·5	22·2	22·9	23·6	24·2	24·7	25·2	Bark ·3	.....
402·5	387·8	397·5	365·4	242·2	248·3	221·6	203·3	154·3	78·3	80·1
22·3	22·8	23·3	24·3	24·2	24·8	24·6	25·4	25·7	26·1	26·7

37 years.

BA.										
17·5	18·2	18·6	19·3	19·7	20·4	21·1	21·6	22·2	22·4	22·8
18·6	19·4	20·1	21·1	22·1	23·1	23·9	24·5	25·1	26·1	26·9
17·2	...	...	...	...	...	...	...	...	...	.....
18·3	19·4	20·0	20·4	21·0	21·6	22·1	22·4	...	...	.....
...	...	...	...	...	..	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
Bark ·3	...	...	...	...	...	...	...	...	...	.....
Bark ·2	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
22·6	23 1	Bark ·5	...	...	...	...	...	...	...	.....
17·5	18·1	18·5	Bark ·4	...	...	...	...	..	...	.....
...	16·5	17·3	17·7	18·5	19·2	20·2	21·2	21·8	22·6	23·3
26·4	27·3	27·9	Bark ·3	...	...	...	...	...	.	... ..
18·3	18·8	19·2	19·7	20·3	20·7	21·1	21·6	22·0	22·3	23·0
21 6	22·0	22·5	22·9	23·5	Bark ·5	...	...	...	...	.....
17·9	18·6	19·1	19·6	20·1	20·6	21·2	21·8	22·4	22·9	23·4
25·1	25·7	Bark ·4	...	...	..	...	...	...	...	... ..
21·3	21·9	22·5	23·2	23·9	24·6	25·3	26·0	26·8	27·3	27·8
19·0	20·1	20·5	20·9	21·6	22·2	23·1	23·6	24·2	24·9	25·4
14·7	15·7	16·6	17·1	17·8	18·5	19·1	19·6	20·1	20·5	20·8
13·6	14·2	14·9	15·6	16·2	16·7	17·4	18·2	19·1	19·5	19·9
20·3	20 9	21·5	21·9	22·4	22·7	Bark ·3	...	...	...	.....
309·9	319·9	279·2	239·4	247·1	230·3	214·5	220·5	203·7	208·5	213·3
19·37	19·99	19·90	19·95	20·6	20·9	21·4	22·0	22·63	23·16	23·7

31 years.

35 years.

APPENDIX

Increment of Test trees

BLOCKS

Compartment No.	Age in 5	10	15	20	25	30	35	40	45	50
	Diameter in									
										BLACK
32	·9	2·2	2·7	3·2	4·1	4·7	5·5	6·2	7·1	7·9
32	1·7	2·5	2·9	3·7	4·5	5·2	6·0	6·9	7·5	8·0
32	·7	1·6	2·3	3·3	4·1	4·9	6·7	6·5	7·2	8·1
35	·5	1·6	2·2	3·4	4·3	5·4	6·3	7·4	8·6	10·1
39	1·0	1·9	2·8	3·8	4·6	5·3	6·2	7·5	8·5	9·5
9	1·4	2·2	2·9	4·1	5·0	5·7	6·4	7·2	7·6	8·1
9	1·2	2·8	3·9	4·9	5·6	6·5	7·1	7·6	8·4	8·9
4	·9	1·8	2·8	3·6	4·6	5·3	6·8	7·8	8·8	10·1
9	1·1	2·0	2·5	2·9	3·6	4·0	4·6	5·3	6·1	6·7
62	2·2	4·1	5·6	6·9	8·6	9·9	10·9	11·8	12·6	13·5
61	1·3	2·3	3·0	3·8	4 6	5·2	6 0	6·8	7·6	8·3
63	·8	1·9	3·4	4·5	5·7	7·0	7·4	8·3	9·3	10·1
63	·8	1·6	2·9	4·3	6·0	6·8	7·6	8·2	9·0	9·6
.....	1·0	1·7	2·3	2·8	3·6	4·1	4·8	5·4	6·0	6·6
66	·8	1·3	2·0	2·7	3·3	4·0	4·6	5·1	5·7	6·3
Total ...	16 3	31·5	44·2	57·9	72·2	84·0	96·9	108·0	120·0	131·8
Average ...	1·08	2·10	2·94	3·86	4·81	5·60	6·46	7·20	8·00	8·78
Period taken to pass from one 3″ class to the next ...	9 years.		17 years.						19 years.	
										HON
9	·5	1·2	1·9	2·6	3·6	4·7	5·6	6·6	7·1	8·2
9	1·1	2·2	3·1	4·1	5·3	6·5	8·1	8·9	9·5	10·1
10	·6	1·3	2·2	3·0	3·8	4·6	5·5	6·4	7·1	8·0
10	·6	1·1	1·5	2·1	2·7	3·2	3·7	4·1	4·6	4·9
10	·6	1·3	2·4	3·4	4·9	6·4	8·1	9·9	11·9	13·5
8	·9	1·9	3·0	3·8	5·3	6·3	7·0	7·9	9·2	10·1
21	1·0	2·2	3·4	4·6	5·8	7·0	8·3	9·4	10·3	11·6
3	·7	1·6	2·4	3·2	4·0	4·8	5·8	6·9	7·9	8·9
3	·6	1·5	2·1	2·9	3·8	4·6	5·6	6·5	7·0	7·8
3	·7	2·2	3·3	4·4	5·3	6·0	7·0	7·8	8·7	9·6
Total ...	7·3	16·5	25·3	34·1	44·5	54·1	64·7	74·4	83·3	92·7
Average ...	0·73	1·65	2·53	3·41	4·45	5·41	6·47	7·44	8·33	9·27
Period taken to pass from one 3″ class to the next ...	12 years.			16 years.		15 years.				16 years.

V.

for period of 5 years.

XXIV AND XXV.

year.

55	60	65	70	75	80	85
inches.						
WOOD.						
8·8	9·1	10·9	12·2	13·3	14·1	...
8·5	9·0	9·7	10·2	10·7	11·3	11·8
8·7	9·3	10·1	11·1	12·3	12·6	...
10·9	11·9	12·8	13·6	14·5	15·4	16·4
10·2	11·1	11·9	12·4	12·6	13·5	14·0
8·9	9·5	9·9	10·6	11·1	11·7	12·5
9·4	10·2	12·1	13·1	13·7	14·4	14·6
10·8	11·9	12·6	13·3	14·1	15·0	...
7·2	8·0	8·8	9·4	10·1	10·7	11·6
14·3	15·3	16·3	17·2	18·2	19·0	19·2
9·1	9·6	10·2	10·8	11·3	12·0	12·5
11·3	12·6	13·9	15·2	16·4	17·5	18·6
10·1	10·7	11·4	12·0	12·6	13·1	13·8
7·2	7·8	8·3	8·7	9·2	9·6	10·1
6·7	7·5	8·1	8·7	9·3	10·1	10·7
142·1	153·5	167·0	178·5	189·4	200·0	165·8
9·47	10·23	11·13	11·90	12·62	13·33	13·81

23 years.

NI.						
9·4	10·9	11·8	12·7	13·7	14·2	15·0
10·6	11·0	11·3	11·7	12·2	12·7	13·0
9·1	9·9	10·9	11·8	12·5	13·4	14·0
5·6	6·1	6·8	7·2	7·7	8·2	8·8
14·8	16·1	17·1	Bark ·5	...	...	...
11·0	11·9	12·6	13·4	14·2	15·1	15·5
13·0	14·0	14·8	16·3	17·7	19·1	21·2
10·1	11·0	11·7	12·8	13·7	14·1	14·7
8·9	9·7	10·6	11·2	11·9	12·6	13·3
10·6	11·8	12·9	14·1	15·1	15·6	17·5
103·1	112·4	120·5	111·2	118·7	125·0	133·0
10·31	11·24	12·05	12·35	12·18	13·88	14·77

22 years. 18 years.

5	170	175	180
..	..		
..	...		
..	...		
..	...		
..	...		
19·7	...		
..	...		
..	...		
..	...		
·6	...		
..	...		
..	...		
..	...		
19·4	20·1		
20·9	21·6		
80·0	41·7		
20·0	20·85		

23·5	23·7	24·1	Bark ·4
..	...	...	.....
..	...	...	.....
..	...	...	.....
..	...	...	.....
..	...	...	.....
..	...	...	.....
..	...	...	.....
23·5	23·8	24·2	24·7
33·7	34·1	Bark ·5	.....
80·7	81·6	48·3	24·7
26·9	27·2	...	.....

R. S. PEARSON,
st Officer, Working Plans, S. C.

B 990—28*

APPENDIX

Increment of Test trees

BLOCKS

Compartment No.	5	Age in 90	95	100	105	110	115	120	125
		Diameter in							
		BLACK							
32	·9	...	...	...	...	...	...	...	...
32	1·7	12·4	13·0	...	...	...	...	...	...
32	·7	...	...	...	...	...	...	...	...
35	·5	17·4	18·3	19·1	19·8	20·4	21·3	21·9	22·5
39	1·0	14·7	15·2	15·7	16·2	16·7	17·9	18·3	18·6
9	1·4	13·0	13·5	14·0	14·5	15·0	15·6	16·1	16·6
9	1·2	15·0	15·6	16·1	16·6	17·1	17·6	18·1	18·5
4	·9	...	...	...	...	...	...	...	...
9	1·1	12·3	13·0	13·7	14·5	15·4	16·4	17·2	17·9
62	2·2	20·5	21·2	21·9	22·5	23·1	23·8	24·5	25·1
61	1·3	12·9	13·3	13·8	14·6	15·2	15·9	16·4	17·1
63	·8	19·3	Bark ·5	...	..	...	...	...	...
63	·8	14·5	15·3	16·2	Bark ·5	...	...	...	...
.....	1·0	10·5	11·0	11·5	12·3	13·0	13·6	14·2	14·8
66	·8	11·3	11·9	12·5	13·2	14·1	14·7	15·3	16·0
Total ...	16·3	173·8	161·3	154·5	144·2	150·0	156·8	162·0	167·1
Average ...	1·08	14·48	14·66	15·45	16·02	16·66	17·42	18·0	18·56
Period taken to pass from one 3″ class to the next ...	9 yea	25 years.							25 years
		HON							
9	·5	15·7	16·4	16·9	17·7	18·3	19·3	19·5	19·9
9	1·1	13·7	14·3	14·8	15·2	15·6	15·9	16·4	16·9
10	·6	14·7	15·5	16·6	16·9	17·4	18·1	18·6	19·2
10	·6	9·3	9·9	10·6	11·2	11·9	12·7	13·0	13·6
10	·6	...	...	...	...	...	...	...	...
8	·9	16·2	Bark ·5	...	...	...	...	...	..
21	1·0	22·2	23·1	24·2	24·8	25·3	25·6	26·0	Bark ·7
3	·7	15·7	16·3	17·9	18·8	20·1	21·2	Bark ·6	...
3	·6	14·0	14·6	15·3	16·0	16·6	17·1	17·4	18·1
3	·7	18·6	19·9	21·3	22·2	23·4	24·8	25·9	26·8
Total ...	7·3	140·1	130·0	137·6	142·8	148·6	154·7	136·8	114·5
Average ...	0·73	15·56	16·25	17·20	17·85	18·57	19·33	19·54	19·08
Period taken to pass from one 3″ class to the next ...	1	18 years.		32 years.					

V.

for period of 5 years.

XXIV AND XXV.

year.

130	135	140	145	150	155	160	165	170	175	180
inches.										
WOOD.										
...	...	...	...	...	...	...	...	..		
...	...	...	...	...	...	...	...	...		
..	..	...	...	...	...	...	...	...		
23·2	23·8	24·4	25·1	25·6	...	...	..	...		
18·9	19·3	20·0	20·5	21·1	...	...	...	...		
17·1	17·6	18·1	18·5	18·7	19·2	19·5	19·7	...		
...	...	...	...	...	...	...	...	...		
...	...	...	...	...	...	...	...	...		
...	...	...	...	...	...	...	...	...		
25·9	26·7	27·3	28·1	28·8	29·7	30·3	Bark ·6	...		
17·5	18·2	18·9	Bark ·4	...	...	...	...	...		
...	...	...	...	...	...	...	...	...		
...	...	...	...	...	...	...	...	...		
15·3	15·9	16·4	17·0	17·4	18·0	18·7	19·4	20·1		
16·8	17·2	17·8	18·4	19·1	19·6	20·3	20·9	21·6		
134·7	138·7	142·9	127·6	130·7	86·5	88·8	60·0	41·7		
19·24	19·81	20·41	21·26	21·78	21·62	22·2	20·0	20·85		

30 years.

NI.										
20·3	20·6	21·1	21·6	22·2	22·7	23·1	23·5	23·7	24·1	Bark ·4
17·5	17·9	18·3	18·7	Bark ·3	...	...	...	...	...	.....
19·9	20·6	21·2	21·8	22·1	Bark ·4	...	...	...	...	.....
14·0	Bark ·8	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
...	...	...	...	...	...	...	...	...	...	.....
18·9	19·4	20·0	20·7	21·4	22·2	22·7	23·5	23·8	24·2	24·7
27·8	28·9	30·0	30·7	31·6	32·6	33·1	33·7	34·1	Bark ·5	.....
118·4	107·4	110·6	113·5	97·3	77·5	78·9	80·7	81·6	48·3	24·7
19·73	21·48	22·12	22·70	24·32	25·83	26·30	26·9	27·2	...	.....

26 years.

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APPENDIX VI.

Statement of Area, Blocks XXIV and XXV, Ankola High Forest.

Compartment No.	Area of Compartments.					Details.			
	Forest. proper.	Minor Forest.	Total.	Betta.	Cultivation.	First quality area.	Second quality area.	Teak producing area.	Evergreen.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1	426·4	...	426·4	...	...	...	426·4	16	77
2	655·2	...	655·2	20·8	14·8	376·4	278·8	68	16
3	276·8	...	276·8	165·2	50·0	276·8	...	70	...
4	674·4	...	674·4	...	13·6	674·4	...	152	25
5	330·8	52·0	382·8	165·2	64·4	382·8	...	50	...
6	510·4	44·4	554·8	2·0	...	554·8	...	48	18
7	669·6	5·2	674·8	...	1·6	674·8	...	164	4
8	579·6	40·4	620·0	...	28·8	620·0	...	168	...
9	618·0	...	618·0	...	...	342·8	275·2	120	...
10	516·4	...	516·4	...	50·0	413·6	102·8	228	...
11	480·8	...	480·8	...	...	...	480·8	...	285
12	566·0	52·0	618·0	...	8·8	362·0	256·0	40	42
13	893·6	...	893·6	...	96·4	729·6	164 0	220	40
14	308·4	36·0	344·4	22·4	53·2	344·4	...	56	28
15	424·8	...	424·8	48·4	55·4	424·8	...	...	20
16	496·4	28·0	524·4	...	56·0	524·4	...	...	21
17	417·2	12·0	429·2	...	30·0	429·2	...	...	60
18	712·4	7·2	719·6	2·0	97·2	719·6	...	...	104
19	737·2	...	737·2	...	...	737·2	...	28	...
20	729·2	...	729·2	...	0·8	729·2	...	...	...
21	759·0	...	759·0	...	8·0	759·0	...	2	...
22	508·8	124·4	633·2	...	41·8	633·2	...	18	...
23	588·0	148·4	736·4	3·2	135·4	736·4	...	...	40
24	730·4	...	730·4	...	19·6	730·4	...	...	72
25	330·0	255·6	585·6	26·0	166·0	585·6	...	...	76
26	777·2	20·8	798·0	...	39·2	798·0	...	216	64
27	445·2	22 0	467·2	...	94·4	467·2	...	124	6
28	577·2	...	577·2	...	...	577·2	...	...	...
29	547·6	18·8	566·4	...	24·0	566·4	...	24	20
30	614·8	...	614·8	...	21·2	614·8	...	118	...
31	392·0	...	392·0	...	...	392·0	...	16	8
32	740·4	25·2	765·6	...	13·2	765·6	...	76	178
33	750·8	...	750·8	...	...	750·8	...	48	96
34	554·4	12·4	566·8	...	12·8	566·8	...	...	...
35	578·2	...	578·2	...	...	578·2	...	50	...
36	522·4	90·0	612·4	...	29·4	350·0	262·4	...	112
37	490·0	10·0	500·0	...	57·2	500·0	...	...	120
38	549·6	36·0	585·6	...	25·2	390·4	195·2	...	230
39	909·8	0·6	910·4	...	...	545·6	364·8	...	490
40	638·0	28·0	666 0	...	36·0	666·0	...	...	224
41	395·6	47·2	442 8	80·4	118·0	442·8	...	20	32
42	610·0	...	610 0	2·0	...	610·0	...	8	28
43	706·0	...	706·0	1·6	54·4	706·0	...	56	72
44	431·6	131·2	562·8	72·8	56·4	562·8	...	54	...
45	770·8	4·2	775·0	63·2	35·8	775·0	...	39	2
46	513·2	40·0	553·2	57·1	100·0	553·2	...	168	20
47	622·8	117·2	740·0	48·0	14·0	740·0	...	32	...
48	605·2	...	605·2	...	20·0	605·2	...	...	...
49	798·0	..	798·0	8·4	132·8	798·0	...	...	24
50	277·2	390·4	667·6	31·4	209·2	...	667·6	...	14
51	522·4	172·4	694·8	178·8	109·2	529·2	165·6	...	60
52	656·8	0·8	657 2	2·4	4·0	309·6	348 0	132	1
53	654·4	75·6	730·0	...	...	247·2	482 8	58	12
54	590·0	...	590·0	...	...	424·0	166·0	118	1
55	552·8	90·0	642·8	...	65·2	470·8	172 0	152	36
56	793·2	...	793·2	...	23·2	317·2	476·0	140	...
57	711·6	80·8	792·4	...	171·2	406·0	386·4	...	20
58	624·4	...	624 4	...	...	472·8	151·6	...	...
59	590·4	130·4	720·8	...	13·4	201 6	519·2	...	...
60	732·8	...	732·8	...	34·0	384·0	348·8	...	...
61	656·8	...	656·8	...	29·6	416·0	240 8	...	...
62	634·4	...	634·4	...	44·0	634·4	...	...	64
63	542·4	...	542·4	...	171·0	362·4	180·0	...	48
64	641·2	...	641·2	...	158·0	196·8	444·4	...	223
65	729·2	...	729·2	...	106·0	...	729·2	...	232
66	959·2	...	959·2	...	13·6	806·0	153·2	...	300
67	1,066·0	144·0	1,210·0	...	66·0	884·0	326·0	...	176
68	605·6	38·4	644·0	28·8	166·4	...	644·0	8	320
69	456·4	338·0	794·4	76·8	228·8	569·2	225·2	...	10
70	398·0	261·2	659·2	...	41·2	272·0	387·2	...	34
Total ...	41,875·8	3,131·2	45,007·0	1,106·9	3,529·8	34,986·6	10,020·4	3,105	4,205

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APPENDIX VII.

Grazing Allotments.

Ankola High Forest Working Plan.

Serial No.	Name of Village.	No. of cattle.	Population.	Area of minor Forest.	Area of Betta.	Area of Government waste.	Total area available for grazing.	Further area required according to Forest Settlement Officer's report.	Area allotted.		Remarks.
									Block No.	Compartment No.	
				Acres.	Acres.	Acres.	Acres.	Acres.			
						BLOCK	XXIV.				
1	Marugadda ...	...	116	46·25	...	30·19	76·44	247·56	Block XXIV.	38	247 acres are required by this village. The cattle of Marugadda and (Kanchibail) will be given grazing in compartment 38, while those of Todsalbail can graze in compartment 37. This more than provides for their requirements, the grazing in reality will be confined to the banks of the Handimadi river which is the only place grass is found in these forests.
	(1) Todsalbail ...	55								37	
	(2) Kanchibail ...	53								38	
	Total ...	108									
2	Makigadda ...	...	138	327·29 (of this 90·0 within and 237·29 outside the circle).	...	30·20	357·49	467·51	Block XXIV.	...	The greater portion of the Makigadda minor forest is outside the working circle, however, in the reserved forest outside the block the forest is unsuited to grazing, so that 467 acres to be given for grazing will have to be given from within the area. Makigadda and Arsabail villages lie to the north of compartment 36, while the hamlet of Muth is in the south of the compartment, grazing should, therefore, be allowed in compartment 36 for these hamlets, as regards Heggar hamlet, it lies on the main road adjoining compartment 35 and the cattle of this hamlet should be allowed to graze in it everywhere east of the Heggar-Muth foot-path. Such an allotment allows for increase of the cattle of these villages.
	(1) Makigadda ...	137								36	
	(2) Heggar ...	99								35	
	(3) Muth ...	6								36	
	(4) Arsabail ...	33								36	
	Total ...	275									
3	Agsur ...	742	652	557·39 (outside the circle).	...	181·12	738·51	1,487·49	...	...	This village lies nearly entirely outside the working circle and the grazing can conveniently be given from reserved forest outside the area.
4	Kavlalli ...	...	106	84·6	...	4·31	88·91	244·09	Block XXIV.	...	This is a very scattered village and allotments will have to be made separately for each hamlet; the total amount of grazing required being 244 acres. Kendge cattle should be allowed to graze east of the Kendge river in compartment 40, those of Keri Kendge in compartment 34, west of the Kendge river, and those of Shirukbail in compartment 32. Yekeguli cattle should graze west of the Yekeguli-Yellápur road foot-path, in compartment 29. In Belargadda there is no habitation and no cattle, while Shedegule is outside the circle.
	(1) Yekeguli ...	34								29	
	(2) Shirukbail ...	10								32	
	(3) Keri Kendge ...	10								34	
	(4) Kendge ...	39								40	
	(5) Belargadde ...	...		depopulated.							
	(6) Shedigule ...	18									
	Total ...	111									
5	Hebbul ...	...	167	346·27 depopulated.	3·2	63·10	412·57	301·43	...	...	The 301 acres required for grazing of the Hebbul cattle should be given in compartment 22, a compartment adjoining the village. There is a detached cultivation in the compartment belonging to Hebbul, locally known as Bhairekop, inhabited by one family; it is through this strip of cultivation that the cattle from Hebbul proper go to water at the river in the hot weather, so that this is the most convenient area in which to give the extra area for grazing to the villagers.
	(1) Ranjanguli ...	...									
	(2) Bhairekop ...	20							Block XXIV.	22	
	3) Hebbul ...	218									
	Total ...	238									

APPENDIX VII—*continued.*

Serial No.	Name of Village.	No. of cattle.	Population.	Area of minor Forest.	Area of Betta.	Area of Government waste.	Total area available for grazing.	Further area required according to Forest Settlement Officer's report.	Area allotted. Block No.	Area allotted. Compartment No.	Remarks.
				Acres.	Acres.	Acres.	Acres.	Acres.			
						BLOCK	XXIV—	*contd.*			
6	Kattinhakal ...	...	279	7·2 within the circle. 235·17 outside the circle	2·0 inside the circle. 162·0 outside the circle.	23·24	429 43	560·57	XXIV.	...	Practically the whole of the minor forests of this village are outside the working circle. Biroli being the only hamlet inside the area. It will, however, be necessary to allot a certain portion of the 560 acres, to be given, from within the working circle, so as to meet the wants of the people of Biroli and sub-hamlets of Koppal, Mathunmalli and Hatigadda. These places all lie along the Kotepal-Sunksal nulla which ferms the west boundary of compartment 18, within which area grazing should be allowed. Sunksalvadi can be supplied with grazing from outside the area.
	(1) Biroli ...	48								18	
	(2) Chanchihakal ...	30								18	
	(3) Kattinhakal ...	252								18	
	Total ...	330		242 19	164·0						
7	Sunksal ...	...	352	383·6 inside. 49·67 outside the circle.	96·8 inside. 20·37 outside the circle.	184·20	734·64	465·36	...	...	This village covers a very large area and is composed of many small hamlets for which arrangements will have to be made separately.
	(1) Ujrali ...	56							...	...	
	(2) Hegadmanikop .	55							XXIV.	14	
	(3) Marthikop ...	45								14	
	(4) Heggar ...	67								14	
	(5) Mulemani ...	71								14	The greater part of Ujrali is now deserted and the land fallen fallow, so that the grazing in the minor forest and fallow land is more than sufficient to meet all requirements. Heggar, Marthikop, Hegadmanikop and Mulemani cattle should be allowed grazing in compartment 14, as these hamlets lie on either side of it.
	(6) Saleguli ...	9									
	(7) Sunksal Manjre.	29									
	(8) Aladkon ...	56									
	(9) Tingalkeri ...	12									
	Total ...	400		433·27	117·17						
											The Saleguli, Tingalkeri and Aladkon cattle have been given a strip of minor forest by the Forest Settlement Officer for grazing and it is sufficient for their purpose. Sunksal Manjre villagers have a large area of minor forest allotted to them which is more than sufficient for their requirements.
8	Mavinmani ...	...	98	* 3,457·14 (outside the circle.)	...	34·38	3491·52	...	...	...	* Pasture reserves in Yellapur.
	(1) Geral ...	94									
	(2) Salemani ...	58									No area from reserved forest is required by the people, large area of minor forest and betta land belongs to this village and is all outside the working circle.
9	Kodalgadda ...	...	713	152·13	353·2 within. 364·2 outside the circle.	12·25	881·75	255·25	...	...	The greater portion of Kodalgadda proper is outside the working circle and can be given grazing from the reserved forest outside the area. The people of Mellinkeri and Mullikeri will have to be allowed to graze in compartments 3 and 5. The Ramanguli cattle will be allowed to graze in compartment 7, east of the Ramanguli footpath, while those of Kalginkeri (Mavikop) will graze south of the main road in compartment 8.
	(1) Mellinkeri ...	126							XXIV.	3 & 5	
	(2) Mullikeri ...	89								3 & 5	
	(3) Ramanguli ...	65								7	
	(4) Kalginkeri ...	99								8	
	Total ...	379			717·4						
10	Shevkar ...	...	174	47·2 inside. 62·0 outside the circle.	80·4 inside. 58·80 outside the circle.	26·22	274·62	406·38	XXV.	41	The greater portion of the village is outside the working circle, Kaigadi being altogether outside the area, so that of the 406 acres required not more than half is wanted by Shevkar itself. This area can be given from the south half of compartment 41, and after half the cutting period, the north half should be given and the south closed.
	(1) Kaigadi ...	227									
				109·2	139·20						

APPENDIX VII—*continued.*

Serial No.	Name of Village.	No. of cattle.	Population.	Area of minor Forest.	Area of Betta.	Area of Government waste.	Total area available for grazing.	Further area required according to Forest Settlement Officer's report.	Area allotted. Block No.	Area allotted. Compartment No.	Remarks.
				Acres.	Acres.	Acres.	Acres.	Acres.			
						BLOCK XXIV—*contd.*					
11	Heggar ...	185	138	164·34 of this (70·8 inside, 93·54 outside the circle).	170·28 (of this 68·8 inside, 101·48 outside the circle).	15·16	349·78	205·22	XXV.	44	Grazing should be allowed in compartment 44, which adjoins the village, but not in compartment 43, north of the village.
						BLOCK XXV.					
12	Kalleshwar83 ... (1) Konal 74.	157	149	177·9	147·33	16·12	341·35	129·65	XXV.	46 45	The Konal cattle should be allowed to graze in compartment 45, north of the Konal-Ramanguli footpath, those of Kalleshwar in compartment 46 and also outside the working circle to the east of the village. These arrangements allow for a substantial increase in the number of cattle.
13	Halvalli ...	...	469	570·4 inside.	254·2 inside.	141·3	1,373·71	...	XXV.	49	Halvalli and Unchalli cattle are provided for by the Forest Settlement Officer. The Kankanhalli cattle should be given grazing in compartment 49, all east of the Kankanhalli-Halvalli foot-path.
	(1) Kankanhalli ...	59		181·85 outside the circle.	225·96 outside.						
	(2) Unchalli ...	22									
	(3) Donemaddi ...	118									
	(4) Malegaum ...	53							XXV.	51	Malegaum is nearly all outside the working circle, Donemaddi or Chilepal is altogether out of the area, there is good grazing outside the working circle, south of Maleganm, cultivation which can be given for grazing to both the Malegaum and Chilepal cattle.
	(5) Duginmani ...	...									As regards Duginmani grazing will have to be given in compartment 51, all south of the Halvalli-Malegaum footpath.
	Outside hamlets ...	180									
	Total ...	432									
14	Kammani ...	97	43	105·2 inside. 10·96 outside.	5·20 (outside the circle).	12·1	133·46	157·54	...	...	The village and hamlets of Kammani lie, except for a very small area, all outside of the working circle and can be fully provided for from reserved forest outside the area.
				116·16							
15	Muski ...	163	161	406·3	199·29	11·18	616·77	...	...	...	Same as note against 14.
16	Dongri ...	...	197	301·2 inside.	7·8 outside the circle.	246·20	574·80	526·20	XXV.	54	In Dongri 527 acres are required. The cattle of Dongri proper can be given ample graziug in compartment 57, all west of the Dongri-Kanchenker footpath. The cattle of Bidralli may be allowed to graze in compartment 55, for half the felling period and in 54 for the other half. The Hegarni, Hosalikop and Aladbail cattle can be allowed to graze in 59, all south of the Donibail nulla and also if necessary outside the working circle. This provides fully for all the cattle of Dongri and its hamlets.
	(1) Bidralli ...	64		19·6 outside the circle.						& 55	
	(2) Heggarni ...	158								59	
	(3) Dongri ...	66								57	
	(4) Hosalikop ...	22								59	
	(5) Aladbail ...	57								59	
	Total ...	367		320·8							
17	Kuntgani ...	...	274	...	...	261·28	261·28	845·72	XXV.	64	The Kuntgani, Armainibail and Asnir cattle can find good grazing grounds in the fallow fields and also in Virkoli deserted village; if more is wanted grazing can be allowed in the south portion of 63 and in 64 in areas between the cultivated and fallow fields, where the forest is of poor quality. For the Malege and Hudgod cattle, ample grazing can be given from the unorganised forest which adjoins the village.
	(1) Armainibail ...	182								64	
	(2) Kanchkeri. ...	126								...	
	(3) Virkoli ...	deserted.								63	
	(4) Asnir ...	17								& 64	
	(5) Changor ...	...							XXV.	64	
	(6) Malege ...	17									
	(7) Hudgod ...	27									
	Total ...	369									

APPENDIX VII—*concluded.*

Serial No.	Name of Village.	No. of cattle.	Population.	Area of minor Forest.	Area of Betta.	Area of Government waste.	Total area available for grazing.	Further area required according to Forest Settlement Officer's report.	Area allotted.		Remarks.
									Block No.	Compartment No.	
				Acres.	Acres.	Acres.	Acres.	Acres.			
						BLOCK	XXV—	*contd.*			
18	Hillur ...	...	971	781·6 inside. 984·62 outside the circle.	105·10 inside. 528·71 outside the circle.	550·1	2,950·63	682·37	...	...	The greater portion of this village is outside the working circle. Hillur and Hillurhail are outside the area and the people graze their cattle in the extensive minor forests allotted to them. Part of Kolge is inside the area and grazing will have to be allowed for this hamlet from the south-east portion of compartment 70. Togsi, Karikal, Holemaki and Halsanhalli are inside the working circle, they have been allotted extensive minor forests and betta lands, which will probably be sufficient for their requirements, if necessary the area north of the road in compartment 69 can be opened to the first 3 named hamlets and north-east of the road in compartment 67 to the Bhats of Harsanhalli. The other 33 hamlets are all outside the working circle and the grazing can conveniently be given from reserved forest outside the area.
	(1) Killurhail ...	117							...	...	
	(2) Kolge ...	46							XXV.	70	
	(3) Togsi ...	69								69	
	(4) Karikal ...	55								69	
	(5) Holemaki ...	124								69	
	(6) Halsanhalli ..	3								67	
	Outside hamlets 33.	795									
	Total ...	1,209		1,766·22	634·31						

Kárwár, 10th November 1909.

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APPENDIX VIII.

Names of the more common species found in these forests.

Vernacular name.		Latin name.	Remarks.
Kánarese.	Maráthi.		
Heddi or Yetagul.	Heddi or Hedi ...	Adina cordifolia	Common, growing to a great size.
Kulgi ...	Khair ..	Acacia catechu	Not common, except in poor localities.
Manjutti ...	Val or Thorla-gunji.	Adenanthera pavonina ...	Fairly common.
Mudhol ...	Satwan or Sat-win.	Alstonia Scholaris	Often found as a very tall tree in the semi-evergreen forests.
Moshe ...	Phudgus or Pherdgus.	Alseodaphene semicarpifolia .	Ditto.
Hebbalsina or Phansi.	Patphannas ...	Artocarpus hirsuta ...	Not very common.
Halsina ...	Phannas ...	Artocarpus integrifolia ...	Generally found in old cultivated areas.
Wonte ...	Wotomba ...	Artocarpus lakoocha ...	Moderately common as a large tree in the deciduous forests.
Godhunchi or Bilkumbi.	Kali Siris ...	Albizzia odoratisima ...	Fairly common, on lower elevations.
Buswanpad ...	Kanchan or Apta.	Bauhinia Lawii or faviolata...	Fairly common.
Banno ...	Apta ...	Bauhinia racemosa ...	Not common.
Shadloo ...	Imli or Apta ...	Bauhinia malabarica ...	Fairly common.
Muttagal or Muthal.	Palas ...	Butea frondosa	Common only in poor localities.
Sauri or Bu:la ...	Sayar ...	Bombax malabaricum	Common, as a large tree
Nurkal ...	Char ...	Buchanania latifolia ...	Common.
Hole Kawla ...	Tivar ...	Barringtonia acutangula ...	Common, along the banks of the Gangavali river.
.....	Nivar ...	Barringtonia racemosa ...	Do. but not so common.
Ippi ...	Mhowra ...	Bassia latifolia	Common, especially in evergreen areas and on river banks.
Mulla honne ...	Kanta kanchi ...	Bridelia retusa	Uncommon.
.....	Lal devdari ...	Chickrassia tabularis ...	Very uncommon.
Kakkai ...	Boya or Bahawa.	Cassia fistula	Moderately common.
Kaul ...	Kumbia ...	Careya arborea	One of the commonest trees in these forests.
Irai ...	Bobbi ...	Calophyllum Wightianum ...	Common in evergeen forests, near nallas.
Audmurgal ...	Punsehi ...	Carallia integerrima ...	Ditto.
Dalchini ...	Dalchini ...	Cinnamomum zeylanicum ...	Fairly common in the evergreen areas.
Biti ...	Sissum ...	Dalhergia latifolia	Common on the hill sides, and in true deciduous forests.
Kusrani ...	Phansa ...	Dalbergia paniculata ...	Not common.
Kanagola ...	Karmal ...	Dillenia pentagyna	One of the commonest trees in these forests.
Kurikocmar ...	.....	Diospyros paniculata ..	Common in evergreen.
Nerlu ...	Jambul ..	Eugenia Jambolana ...	Common.
Advi Bhendy ...	Ran bhendy ...	Erinocarpus Nimmoanus ...	Common.
Aole lucky or Nirkal.	Bhedas ...	Eugenia zeylanica	Common on banks of nallas and by the side of cultivation.
Al ...	Wad ...	Ficus bengalensis	Common on the low-lying areas.
Arle ..	Ashvatha ...	Ficus religiosa	Near old cultivations.
Atti ...	Umbar ...	Ficus glomerata	Fairly common.
Pakari ...	Pipli ...	Ficus infectoria	Not very common.
Goli ...	Bhurvar ...	Ficus mysorensis	Common.

APPENDIX VIII—*continued.*

Vernacular name.		Latin name.	Remarks.
Kánarese.	Maráthi.		
Dadsal ...	Dhamni ...	Grewia tiliæfolia	Common, but not of great size.
Murgal ...	Bhirand or Bherandi.	Garcinia indica	Common, especially near nallas and in moist places.
Shivani ...	Shivan ...	Gmelina arborea	Very uncommon.
Honga ...	Kalhonni or Kalazad.	Hopea Wightiana	Common in evergreen areas.
Nandi ...	Nana ...	Lagerstrœmia microcarpa ...	Very common and growing to a great size.
Hole dasal ...	Taman ...	Do. Flos-Reginæ .	Found along the Gangavali river.
Chunungi ...	Lende or bondga	Do. parviflora ...	Common in poor localities.
Mavina ...	Amba ...	Mangifera indica	Common as a large tree, especially in semi-evergreen forests.
Chandkal ...	Chandodi ...	Macaranga Roxburghii ...	Common in open glades or on cut lines.
Buckhne ...	Owli ...	Mimusops Elengi	Common in evergreen.
Pandry ...	Pandry ...	Murraya exotica	On banks of precipitious nallas in evergreen.
.....	Ranjaiphal ...	Myristica malabarica ...	Common in evergreen.
Gugnl ...	Moee ...	Odina Wodier	Common.
Honni or Honne...	Bio (Asan) ...	Pterocarpus marsupium ...	Common in the true deciduous forests only.
Hongye or Honge.	Karanj ...	Pongamia glabra	Common along nallas.
Nelli ...	Awla ...	Phyllanthus Emblica ...	Fairly common as a small tree.
Kadawar ...	Kallam ...	Stephegyne parvifolia ...	Fairly common, but not of great size.
Maragavargi ...	Umb or womb ...	Saccopetalum tomentosum ...	Common in deciduous forests, often as a very tall tree.
Genasing ...	Kursing ...	Stereospermum xylocarpum. .	Fairly common as a small tree.
Amahe ...	Ambada	Spondias mangifera	Not very common.
Sagadi ...	Kosum	Schleichera trijnga	Common, especially in semi-evergreen areas.
Kasarkana ...	Kajra	Strychnos Nux-vomica ...	Very common.
Sag or Tegina mara.	Sag	Tectona grandis	Found locally only.
Matti ...	Ain	Terminalia tomentosa ...	One of the commonest trees in these forests.
Hongal ...	Kindal	Terminalia paniculata ...	Ditto.
Tare ...	Goting or Bherda.	Terminalia belrica	Common as a very large tree.
Hole matti ...	Arjun ...	Terminalia Arjuna	Common on river banks.
Anala ...	Hirda ...	Terminalia Chebula ...	Common on the poorer localities south of the river.
Bhendi ...	Bhendi ...	Thespesia populnea	Not common.
Jermal ...	Ugado ...	Tetrameles nudiflora ...	Fairly common as a very large buttressed tree.
Hunase ...	Chinch ...	Tamarindus indica	Common in deserted places.
Bele kodsaloo or Nagar kedo or Mnddarsa.	Naglkudo or Pandrakuda.	Tabernœmontana Heyneana .	Common in the evergreen areas.
Bulgi ...	Bharnigi ...	Vitex altissima	Fairly common, but local in distribution.
Jambe ...	Jamba ...	Xylia dolaleriformis ...	The commonest tree in these forests.
Illanji ...	Bor ...	Zizypus Jujuba	Found very locally.
Gorchi ...	Got-bor ...	Xixyphus zylopyra	Ditto.
Armadol or Junemikai.	Thirpal ...	Zanthoxylum Rhetsa ...	Not very common.

APPENDIX VIII—*concluded.*

Vernacular name.		Latin name.	Remarks.
Kánarese.	Maráthi.		
	Bamboos	*and Common Shrubs.*	
Medar or Shib when small.	Thirpal ...	Dendrocalamus strictus ...	Very common.
Dowgai ...	Kalak ...	Bambusa arundinacea ...	Very common
Sheme ...	Chiva ...	Oxytenanthera monostigma...	Found only very locally.
Bettha (cane) ...	Weth ...	Calamus Thwaitesii ...	Found in the evergreen forests only.
Talipalm ...	.....	Corypha umbraculifera ...	Only found on the hill south of Kankanhalli.
Dadsel ...	.....	Arenga Wightii	Only found in evergreen forests and along river banks.
Gurti ...	Karvi ...	Strobilanthes callosus ...	Very common in all true deciduous forests.
Kodsa ...	Kuda ...	Holarrhena antidysenterica ...	Fairly common.
Kowri ...	Kevani ...	Helicteres Isora	Fairly common.
Kuntnair ...	Ranlavang ...	Eugenia Caryophyllœa ...	Not very common.
Kuda (Kodmurki).	Kala-kura ...	Wrightia tinctoria	Fairly common.
Gudde dasal (Kusumale).	Pendgul ...	Ixora coccinea	Common.
Purgi or Kare-Suji.	Kanerballi ...	Zizyphus Œnoplia	Common in open jungles.

Kárwár, 10th November 1909.

RALPH S. PEARSON,
Divisional Forest Officer,
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APPENDIX IX.

Net revenue from timber, grazing and minor forest produce realized during the last 10 years from organised forests in the Ankola Range.

Year.	Trees cut.	Logs prepared.	Cubic feet.	Other dead wood on permit.	Under Kánara permit rules.	Net Revenue.	Grazing.	Minor Forest Produce.	Total.	Remarks.
1	2	3	4	5	6	7	8	9	10	11
				C. ft.	C. ft.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1898-1899 ..	745	1,303	28,214·00	21,695·66	6,787·07	13,550 12 6	1,361 10 9	3,079 14 3	17,992 5 6	
1899-1900 ...	812	1,719	43,669·47	27,982·53	4,412·00	13,378 3 3	2,062 9 6	2,443 6 9	17,884 3 6	
1900-1901 ...	1,324	1,798	50,328·74	3,257·26	3,642·00	25,429 8 7	2,818 13 3	2,275 9 0	30,523 14 10	
1901-1902 ...	594	1,172	35,284·87	4,033·13	1,598·00	13,142 11 0	2,059 11 9	244 4 1	15,446 10 10	
1902-1903 ...	936	1,883	56,235·01	510·99	1,942·00	17,782 14 10	1,848 6 0	293 4 7	19,924 9 5	
1903-1904 ...	627	1,544	38,413·84	3,816·16	2,892·00	12,026 8 3	1,882 8 9	1,570 5 6	15,479 6 6	
1904-1905 ...	460	1,249	31,841·19	11,779·81	4,732·00	25,961 12 11	2,942 7 9	487 6 7	29,391 11 3	Also 3,836 Jamba sleepers,
1905-1906 ...	550	1,145	31,252·79	3,947·21	3,806·00	24,608 14 10	4,556 11 9	606 4 1	29,771 14 8	„ 4,116 do. „ 4,175 do.
1906-1907 ...	703	1,214	36,206·57	546·60	2,651·91	18,577 14 2	1,609 8 0	644 14 3	20,832 4 5	
1907-1908 ...	450	761	25,668·09	...	2,388·00	13,347 2 2	3,562 10 0	2,404 8 11	19,314 5 1	
Miscellaneous ...	...	362	8,477·41	...	...	.....	.. ...	.....	.....	
Total ...	7,201	14,150	385,591·98	77,569·35	34,850·98	1,77,806 6 6	24,705 1 6	14,049 14 0	2,16,561 6 0	

Kárwár, 10th November 1909.

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